THE

# AMERICAN JOURNAL OF PHARMACY.

NOVEMBER, 1865.

## MINUTES OF THE THIRTEENTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1865.

The thirteenth annual meeting of the American Pharmaceutical Association commenced its proceedings at the hall of the Massachusetts College of Pharmacy, Temple Place, Boston, on Tuesday, September 5th, 1865, at 3 o'clock, P. M., the President, W. J. M. Gordon, of Cincinnati, occupying the chair; Henry N. Rittenhouse, Secretary.

A Committee on Credentials was appointed by the chair, consisting of Messrs. Stearns of Detroit, Moore of Baltimore, and Massot of St. Louis, and pending their action the President invited all members present to enroll their names in the roll book belonging to the Association.

The Committee on Credentials reported the following gentlemen as delegates to attend this meeting, viz.:

*From the New York College of Pharmacy.*—George C. Close, William B. Little, C. W. Kitchen, P. W. Bedford, F. F. Mayer.

*From the Cincinnati College of Pharmacy.*—E. S. Wayne, A. M. Johnson, L. Groneweg, Paul Reinlein, W. J. M. Gordon.

*From the St. Louis College of Pharmacy.*—Theodore Kalb, Ferd. F. Sennewald, Hubert Primm, E. L. Massot, J. S. B. Alleyne.

*From the Maryland College of Pharmacy.*—J. J. Thomsen, J. B. Baxley, N. H. Jennings, J. Faris Moore, W. W. Cunningham.

*From the Philadelphia College of Pharmacy.*—Dr. W. H. Pile, Edward Parrish, J. M. Maisch, Evan T. Ellis, D. S. Jones.

*Massachusetts College of Pharmacy.*—Charles A. Tufts, John Buck, William Brown, G. F. H. Markoe, S. M. Colcord.

*Alumni Association of the Philadelphia College of Pharmacy.*—Thomas S. Weigand, Ferris Bringhurst, R. M. Shoemaker, Charles L. Eberle, A. E. Ebert.

A question being raised as to the eligibility of the latter Association to send delegates to this body, it was freely discussed, and decided negatively by the President.

Mr. Colcord appealed from the decision of the chair, and being sustained by the meeting, after further discussion the delegates were admitted.

(The objections appeared to rest on the fact that the Alumni Association was not a regular Local Pharmaceutical Organization, its members residing in various parts of the Union. It was shown, in opposition to this view, that the Massachusetts College represented all the New England States, and that the first member on their Delegation was from New Hampshire. It was also shown that the objects of the Alumni Association were in harmony with the objects of this Association.)

The Chairman of the Executive Committee, Mr. Maisch, reported the following named gentlemen as applicants for membership coming duly recommended, viz.:

Fred. W. Coleman, Walla Walla, Wash. Ter.
Bunting Hankins, Bordentown, N. J.
Robert B. Parkinson, Phila., Pa.
Henry Sweet, Chicago, Ill.
F. A. Bryan, "
J. P. Sharp, "
J. H. Hooper, "
Louis Woltersdorf, "
Thomas Whitfield, "
Henry G. D'Evers, "
John Parsons, "
Emil Dietzsch, "
Thomas Brown, "
N. T. Curth, "
A. B. Bryan, "
S. S. Bliss, "
Henry W. Fuller, "
George McPherson, "
John Burrell, Freeport, Ill.
A. Palmer, Janesville, Wis.
Edwin Tomlinson, Fort Wayne, Ind.
Charles E. Hænchen, Boston, Mass.
Augustus Henkel, Phila., Pa.
Robert Platzer, Phila., Pa.
W. H. Muller, Chicago, Ill.
G. M. Hambright, "
Joseph Willard, "
James Boland, "
N. Mead, "
Henry Biroth, "
Charles Heylman, "
Emil Dreier, "
M. P. White, "
J. V. Z. Blaney, M.D. "
J. Henry C. Simes, Phila., Pa.
Edwin Scott, Chattanooga, Tenn.
James R. Mercein, Jersey City, N.J.
J. M. Abernethy, "
Thomas Tanton, St. Louis, Mo.
Evermont Randals, "
Ferd. W. Sennewald, "
Daniel Roemer, Cincinnati, O.
Alfred V. Forgey, "
Jerome B. Jardella, Madison, Ind.
John Frey, New York, N. Y.
C. F. L. Hohenthal, "
Hervey D. Thatcher, Potsdam, N.Y.

Gustavus Krehbiel, New York, N.Y.
James F. Morgan, "
F. W. Colby, "
Robert C. Kennedy, Cleveland, O.
Henry E. Webb, New York, N. Y.
Max Frohwein, "
C. W. Kitchen, "
Alfred Mason, "
T. Gibson Tweed, "
Wm. E. Jenkins, S. Boston, Mass.
James Gallagher, Terre Haute, Ind.
William H. French, Lowell, Mass.
Geo. W. Austin, Terre Haute, Ind.
D. G. Wilkins, Boston, Mass.
J. Howes Dyer, "
Chas. M. Duren, St. Albans, Vt.
Henry C. Steever, Memphis, Tenn.
Andrew Blair, Phila., Pa.
G. W. Eldridge, "
J. L. Bispham, "
J. R. Nichols, Boston, Mass.
Bruce M. Brake, Cincinnati, Ohio.
G. W. Brown, Logansport, Ind.
H. Van Sweringen, Ft. Wayne, Ind.
Eben Blatchford, Jr., Rockport, Mass.
C. G. Underwood, Boston, Mass.
J. B. Colton, "
W. D. Atkinson, "
L. R. Blackman, Jackson, Mich.
Leonce Cherot, Memphis, Tenn.
G. W. Churchill, Chelsea, Mass.
Eugene Whittemore, Boston, Mass.
Charles F. Bartlett, "
Wm. D. Broomhead, East Somerville, Mass.
J. Sanborn, Jr., Dorchester, Mass.
F. W. Hoyt, Lowell, "
E. H. Perry, Boston, "
G. D. Dows, " "
George Marsh, Dedham, "
E. H. Doolittle, Jr., " "
S. A. D. Shepard, Salem, "
James F. Babcock, Boston, "
John R. Colby, " "
E. R. Knight, Melrose, "
M. L. Wetherell, Gloucester, "
Andrew Geyer, Ipswich, "
Frank B. Clock, Manchester, N. H.
F. E. Covell, Portland, Maine.
W Augustus Safford, Boston, Mass.
F. W. Simmons, " "

A ballot being ordered, two members were appointed tellers, who reported the unanimous election of the candidates.

The roll being now called the members present answered to their names.

The reports of Standing Committees being called for, the report of the Executive Committee was presented by its chairman, Mr. Maisch, and laid on the table.

The Report of the Committee on the Drug Market being next in order was called for, but not ready.

The Report of the Committee on a certificate of membership was ready.

The Committee on the Pharmacopœia had nothing to report.

The Committee on Scientific Queries was ready.

It was now ordered that the Report of the Executive Committee be read, which was done by the chairman, as follows:

"The Executive Committee submit the following Report of their labors during the last year.

At the meeting in Cincinnati, a resolution was passed, but afterwards reconsidered and lost, to withhold the Proceedings from all members who are three years in arrears with their annual contributions.

The rise in the price of paper and labor made it obvious that the cost of publishing the Proceedings would be considerably higher than heretofore, and in view of the depleted state of our treasury it was suggested, and agreed to by the Treasurer, to send out the bills for the year 1865 in the early part instead of in the middle of the year, in order to avoid, if possible, the necessity of borrowing money to meet the current expenses, as had to be done on former occasions. A glance over the Treasurer's books revealed the alarming fact that the amount due to the Association by delinquent members, who were in January last in arrears with their contributions for *four* years and over, amounted to nearly three thousand dollars!

The Chairman addressed a circular to the members of the Executive Committee and suggested, in view of the reconsidered resolution before mentioned, to withhold the Proceedings from all members *four years in arrears*, which was unanimously agreed to.

It having been ascertained that the Association was not in possession of the signatures of many of the members, to the Constitution, and it being impossible to ascertain whether these signatures had ever been given and subsequently lost, or not, it was likewise agreed to require from all such members their signature to the Constitution, and in the event of their refusal or neglect to comply with this request to withhold the Proceedings from them likewise.

In the meantime a circular had been addressed to all the newly elected members requesting them to sign the Constitution and pay the dues in accordance with Art. ii. 3 and 4. The same circular was also sent to all those members whose signatures were not in possession of the Executive Committee.

The answers to these communications were extremely few, and after waiting for several weeks another circular was sent, with a copy of that portion of the preface to the Proceedings for 1864 referring to their case.

The cases of delinquent members were treated precisely the same way, two circulars being sent at different times to each one four years in arrears who did not respond to the first.

All neglects and refusals to comply with the requests of the Executive Committee shared alike; the Proceedings for the last year were withheld from such members.

At the approach of the present meeting, early in August, the Chairman issued another circular chiefly with the view of informing all concerned that their cases would be laid before the Association for its action.

In the larger cities one of the members of the Association was requested

by the Chairman to endeavor to collect the signatures and dues of the members in question, and we hereby express our gratitude to the following gentlemen for their prompt aid extended to us: Messrs. S. M. Colcord of Boston, P. W. Bedford of New York, J. B. Baxley and Prof. Moore of Baltimore, Eugène L. Massot of St. Louis, E. H. Sargent of Chicago, Frederick Stearns of Detroit, W. J. M. Gordon of Cincinnati, J. C. Mattern of Pittsburg.

Appended to this report we hand in a list of those members who have never answered the request of the Executive Committee to sign the Constitution, and those who refuse to sign it mostly for the reason that they never intended to become members. We also append a list of those members to whom circulars were sent for being in arrears and who have never paid up their dues.

It should be remarked here that no communication was held or attempted with members of the above mentioned classes who reside in States lately in rebellion against the United States. A list is appended of those of whom the Executive Committee could find no evidence of their having signed the Constitution.

The correspondence in relation to the above subjects was carried on during the publication of the Proceedings of 1864. The chief causes for the delay in issuing the volume, were beyond the control of the Executive Committee. Notwithstanding an unlooked for delay in the transmission of the minutes and manuscript papers, and the sending of proofs to distant cities, hopes were entertained to deliver the Proceedings to the members early in January; the subsequent delay was due to the slow execution of the principal plates.

An edition of one thousand copies was printed, 750 bound in cloth and 250 in paper covers. The cost of publishing the same was as follows:

| | |
|---|---|
| For Composition, | $459 21 |
| Press work, | 55 20 |
| Paper, (27 reams at 13 dollars), | 351 00 |
| Lithographing, wood cuts, and printing, | 98 00 |
| Binding 750 volumes in muslin (25 cts.,) | 187 50 |
| Paper covers and binding, | 9 50 |
| Wrapping 650 volumes, | 5 50 |
| Internal revenue tax, | 57 60 |
| Total cost of publication, | $1223 51 |

The other expenses of the committee were:

| | |
|---|---|
| For Postage and revenue stamps, | $44 60 |
| Postal money orders, | 40 |
| Stationary and Blank books, | 5 61 |
| Delivery of Proceedings in Philadelphia, | 2 00 |
| Packing boxes and freight, | 27 20 |
| Printing 500 Constitutions, | 9 71 |

| | |
|---|---|
| Printing circulars, | 15 75 |
| Finishing 16 vols. Proceedings 1863, | 6 50 |
| Freight for Exchange Journals, | 50 |
| Binding manuscript, | 1 50 |
| Fire Insurance, | 13 30 |
| | $127 07 |
| Total expenses of the Committee during the year, | $1350 58 |

One copy, bound, was delivered by mail, post paid, to each member entitled, except those residing in the larger cities, who were supplied by a member resident there. No one was omitted, but several volumes failed to reach their destination and had to be remailed. [The Committee complain of the omission of members to inform of their change of residence which is a fruitful cause of these miscarriages, and suggest that such persons should not be re-supplied without charge.]

The stock of Proceedings of the different years stored at the hall of the Philadelphia College of Pharmacy is as follows:

| | |
|---|---|
| For 1852, | None. |
| " 1853, | 225 copies. |
| " 1854, | 43 " |
| " 1855, | None, |
| " 1856, | 42 " |
| " 1857, | 293 " |
| " 1858, | 366 " |
| " 1859, | 83 " |
| " 1860, | 169 " |
| " 1862, | 350 " |
| " 1863, | 280 " |
| " 1864, | 364 " |

This list does not include several volumes at each of the points of distribution in large cities.

The stock was insured by the Executive Committee in the New Amsterdam Fire Insurance Company of New York City, for nineteen hundred dollars at a premium of seven-tenths per cent., making an annual expense of $13.30. The Committee recommended that the amount of insurance be increased or decreased annually, by the Chairman of the Executive Committee, if the value of the property should change materially.

Comparatively little revenue was derived from the sale of Proceedings; as far as ascertained the amount is as follows:—15 copies for 1864 and 18 of previous years $40.09.

The Committee recommended to deposit with the Colleges of Pharmacy of the United States that are willing to undertake the trouble, a small number of copies of the different years, provided that the Secretaries of these Institutions agree to furnish a complete statement of sales and stock remaining unsold, by the 1st of August of each year, to the Chairman of the Executive Committee.

They also recommended that members write their papers on foolscap paper to enable the Secretary to file them away in accordance with Art. 3d Section 4 of the Constitution.

[The Report proposes several alterations in the Constitution in relation to the admission of members; to the annual payment; to the withdrawal of members; and to the duties of the Executive Committee, but space does not allow of their notice here.]

We deem it expedient to say a few words with regard to the financial prospects of the Association. The heavy expenses for publishing the last Proceedings could only be met by the prompt payment of the annual contributions of the current year, and of the debts of some members incurred in past years. It is more than probable that very little revenue will be derived hereafter from this latter source, nearly all who allowed their bills to accumulate for four years or more, and who feel any interest in the cause of Pharmacy having paid up. Each year a number of members by becoming life members become exempt from dues, and if hereafter we allow no one to leave his dues unpaid for more than two years, we can henceforth calculate only on the new acquisitions to our number. If we admit the annual expenses to be $1200, it will require an average addition of 48 members annually, which the committee think within the limits of probability. No further taxing of life members will be necessary if we only carry out our laws. But in case any unforseen emergency should arise, a clause might perhaps be added to the Constitution, enabling an extra tax to be levied on all members alike at any annual meeting, such tax to be paid by the 1st of January following. We have no doubt that an additional assessment would be willingly paid by each member, if the Association would express the necessity for it.

Gradually as the blessings of peace continue, our expenses will be again less, and the time may come when we shall be enabled to offer prizes for original investigations if deemed proper.

Before closing the report, the sad duty remains to be performed of announcing the names of those of our associates whom death has removed from amongst us as far as we have heard.

G. C. Wilson, of Boston, Mass.
Wm. Gay, Cambridgeport, "
D. F. White, Charlestown, "
W. F. Clency, Cincinnati, Ohio.
Frederick L. John, Phila., Pa.
Frederick Rollman, Phila., Pa.
N. Cressman, Waterloo, C. W.
Lewellyn Phillips, Baltimore, Md.
William Longshaw, Jr., Bayou Sara, La.

[We have not space for the obituary notices, and omit them.]

The report was on motion accepted.

A Committee on Nominations was now appointed, according to Constitutional provision, by the delegations and the President, —viz.:

George C. Close, of New York, E. L. Massot, of St. Louis,

E. Parrish, of Philadelphia, J. F. Moore, of Baltimore, W. J. M. Gordon, of Cincinnati, S. M. Colcord, of Boston, T. S. Wiegand, of Philadelphia, by the delegations. Frederick Stearns, of Detroit, Charles A. Tufts and E. W. Sackrider, by the President.

The President now read his annual address.

*To the Members of the American Pharmaceutical Association:*

GENTLEMEN,—We feel highly privileged in meeting again in this beautiful city, the centre of learning and refinement, where we have always been welcomed with so much cordiality and genuine hospitality. We rejoice to meet within her classic and historic walls, feeling that when we return to our distant homes, we shall feel that it was good for us that we had been there.

We meet this year under circumstances of no ordinary importance and significance, both as regards the time and the place.

Since our last assembling, in the Queen City of the West, the direful sounds of desolating war have ceased; the honor of the flag of our country has been vindicated; peace and union once more reign throughout the length and breadth of our land.

You will not consider me an enthusiast when I say that we ought to bless and praise our God with all our hearts, for His great mercies to us as a nation; we ought to show forth our gratitude for His goodness to us, with the best power we possess. Allow me to congratulate you upon this most auspicious event, of such vast moment not only to our country, but also to our honored Association. May the gates of the temple of Janus, which have been open during the last four eventful years in the history of our country, and are now to mark the return of peace, remain closed forever. May the God of nations so rule the destinies of our great and glorious republic, that our citizens may never again be summoned from the walks of peace and usefulness to learn the art of war, and pour forth in seas of blood their precious lives,—thus carrying desolation and bereavement to the hearts and hearths of their once happy homes.

As members of a scientific Association, having for its main object the advancement of the members of our calling, in elevating and useful knowledge, we have, as a matter of course, nothing whatever to do with politics; our boast is that we meet on the common ground of a brotherhood which interferes not with the religion or politics of any of its members. We feel, therefore, that we have nothing to do as a Convention, assembled for such purposes as I have indicated, with the war, (which is now happily closed,) other than to deplore its necessity, to mourn over the separation it has caused us, for the time being, from many of our brethren; to regret the hindrance it has been to the advancement of our cause, and to rejoice (which we do most heartily) in its termination. Many of our members, particularly in the Southern States, have been

practically cut off from connection with our Association during the last four years, and their vacant places have been the cause of no little sorrow to those of us who were enabled to meet. I think I express the sentiments of every member of the Association now met in our annual conclave, when I say our doors stand open to all those who have been hindered from meeting with us, and a hearty welcome awaits them. A mere conforming to the rules in the matter of dues in arrears, is all that will be required to entitle them to this privilege, as well as to the Proceedings of our annual meetings that would be due them. The moral effect of such a reunion as we contemplate, and trust most heartily will be consummated upon the nation at large, cannot easily be over-estimated. It will be one link, at least, in that chain of restored confidence and friendly intercourse which every true patriot and lover of his country must be anxious to witness, and is willing to do all in his power to accomplish.

The financial condition of the Association is extremely gratifying; it is entirely free from debt, and has about $350 remaining in the treasury. This is much better than anticipated at our last meeting. The cost of publishing the Proceedings of the last Convention was about one-third more than the year previous.

The Executive Committee will make a comprehensive report of their labors since our last meeting, and also several suggestions as amendments to the Constitution, which they think desirable.

Attention is called to the large amount due by members in arrears. The amount now due by all delinquents is $3,458, the principal portion of which is from those who are in arrears over four years.

This subject has been under consideration before, but without arriving at a conclusion as to the best means of overcoming the difficulty and preventing further losses. It has been placed before most of those in arrears, at least as far as it could be done, and the success attending it will no doubt be reported to you. There are a large number who have been elected members, and whose names appear upon the roll, that have not signed the Constitution, and some have not paid a single contribution. Printed copies of the Constitution have been placed before them all, that their membership might be perfected.

I think the time has arrived when prompt action should be taken in regard to delinquents, as due notice has been given, and no benefit can arise from further delay, such being useless to the Association,—neither contributing means or their presence to its support.

I would suggest that the names of those in arrears over four years be removed from the roll, and placed upon a suspended list in the published Proceedings for one year, with the privilege of reinstatement at the expiration of that time, if the Constitution is signed and dues paid up. If not, their membership to cease.

The Committee on the Progress of Pharmacy present a less voluminous report than usual, caused by circumstances beyond the control of the

Chairman. Any falling off in this most interesting part of our proceedings is much to be regretted, and it is hoped may yet be made perfect in time for publication.

I have not been able to confer with the Committee on the Drug Market, nor the Committee on the Pharmacopœia.

The Committee on Scientific Queries will present an ample number for investigation; and I take this occasion to urge upon all who accept subjects the importance of investigation, and a report at the appointed time. Frequently the Association is deprived of information that would be obtained from others, by subjects being taken and never reported on.

The large tax upon spirit is one of the most important matters for our consideration. Its bearing upon the drug trade, and the manufacture of chemical and pharmaceutical preparations so largely increasing their value, making a class of articles evidently never intended to be so much enhanced in value from this cause by the framers of the internal revenue law, but no doubt was either overlooked, or the extent to which it enters into medicinal preparations not known to them. While none of us would interpose an objection to whatever tax the government may see fit to put upon spirit as a beverage, we think it should be exempt from taxation for chemical and pharmaceutical uses; and I have no doubt if this subject was brought properly before the Committee of the next session of Congress, the relief desired could be obtained.

There are obvious reasons why medicines should be produced as cheaply as possible. The large consumption of them by those illy able to bear the expense, who at the time are unable to labor, and who are dependent upon it for their support, while cheapness of the means of producing will offer less temptation to deception, and insure them of better quality.

The Internal Revenue Law, in the construction placed upon it for licenses and manufacturers' tax, is another heavy burden upon the pharmaceutist, and, as far as my knowledge extends, not borne in proportion by any other branch of business. From three to four licenses are required to conduct the practice of pharmacy: 1st, a license as retail dealer in medicines; 2d, to retail liquors, which are officinal medicinal articles; 3d, to sell liquors in quantities over three gallons; 4th, a manufacturer's tax, if the articles made exceed six hundred dollars per annum; and six per cent. to be paid upon the articles manufactured.

A dealer in almost any other business can take out a single license, which will cover a wholesale and retail business. These, and the tax upon alcohol, should receive our earnest consideration, and an endeavor to obtain some relief.

Some interest, as well as apprehension, has been manifested in regard to the large number of Hospital Stewards who have been relieved from the army, and what the bearing may be upon the status of Pharmacy. I can scarcely conceive that the influence will be important. While those qualified for the practice of pharmacy will no doubt return to their call-

ing, and assume a position according to their ability, those unqualified must necessarily take position according to their merit.

At the last meeting an amendment was offered to the Constitution, and laid over to an early session at this meeting, to elect a permanent Recording Secretary, at a salary of $100 per annum, and the payment of travelling expenses to and from the place of meeting, who shall edit the Proceedings and attend to their distribution. It will be necessary to act upon this early, so as to give a chance for election, if adopted.

At our last meeting a Committee was appointed to get up a new certificate of membership. No doubt a report will be made by them.

In closing this report, it is a source of extreme gratification to be able to say that after passing through a period of over four years of war, with its necessary excitement, and the withdrawal of so many from scientific pursuits, and the consequent loss to Associations of this kind,—that we present so prosperous a condition; and there can be no doubt but that from this time forward (as it has been in the past,) we shall go on in unexampled success and usefulness.

In retiring from the Chair, I tender to you all, whom I have met with so many years, and with so much pleasure, my earnest thanks for your partiality in placing me in the position I have occupied the past year, and the manner in which you have sustained me in the discharge of its duties.

W. J. M. Gordon, *President.*

The resolutions relative to the alteration of the Constitution, so as to make a permanent Secretaryship, with a salary attached, laid over for action from last year, and which should have been considered before the President's address, being now brought up, the President stated that it must now be acted upon before adjourning.

The Chairman of the Business Committee read the resolution concerning the amendment, and stated that the first question was, Shall the Constitution be amended?

The question was put by the Chair, Shall the Constitution be amended? which was carried.

Shall the Secretary be elected permanently? This also was carried.

Dr. Squibb.—It remains to decide whether the Permanent Secretary shall have a salary; and if so, what salary. I should like to hear a general expression of views from the members.

Mr. Maisch.—I am in favor of giving a salary, and should vote for increasing it if we were able to do so. The amount stated is insufficient.

Mr. Parrish was for leaving the amount to be fixed annually.

Mr. Tufts favored this view, as not involving an alteration in the Constitution.

Mr. Stearns wanted information to explain the objects of the amendment.

Dr. Squibb.—These are that the Association should have a fixed officer and organization, to transmit business from one year to another. It is now an annual organization, excepting the Executive Committee, and that only appears in a report. With a permanent Secretary there will be an officer who is conversant with the business, and carries it forward from meeting to meeting. He will have possession of all papers, have charge of printing and editing the Proceedings, and by education will become better adapted to do the work than any other. The Proceedings would then always be published in the same place, and a regular routine established, &c.

Mr. Maisch said the foreign correspondence with European Societies would best centre in the permanent Secretary, and he would be a constant medium for the receipt of books, papers, &c.

[Further discussion ensued, for which we have not space, resulting in fixing the salary at one hundred dollars, and directing the travelling expenses of the Secretary to be paid by the Association.]

An invitation was received from Mr. J. G. Williams, Apothecary at Massachusetts General Hospital, to visit that Institution. Also an invitation from Prof. Asa Gray to visit the botanical garden at Cambridge; both of which were accepted, and thanks tendered for the courtesy.

The meeting then adjourned until to-morrow morning at 9 o'clock.

*Second Session—Sept. 6th. Wednesday morning.*

The meeting was called to order by President Gordon, at 9½ o'clock.

The Secretary called the roll, and read the previous minutes.

The Executive Committee brought forward the following names of candidates for membership, viz.:

C. W. Lowe, Cambridgeport, Mass.
Robert R. Rhodes, Brooklyn, N. Y.,
Jas. E. Blake, New Bedford, Mass.,
Alf. Daggett, Jr., New Haven, Conn.
Michael J. Lauer, Baltimore, Md.

An election being ordered, Messrs. Shinn and E. C. Jones, acting as tellers, reported the unanimous election of the candidates.

A communication was received from John L. Hunnewell, which was read and directed to be placed on file.

Prof. J. F. Moore, of Baltimore, read the Treasurer's Report, which was accepted and referred to an Auditing Committee, consisting of Messrs. Stearns, Moore and Haviland.

[We have not space for this report. It is sufficient to say that, through the energy of the Treasurer, his report shows the Association to be out of debt, with a balance of $326.11; the receipts being $1823.71, and the disbursements $1497.60. The Treasurer declines further service, and recommends that in future the travelling expenses of this officer be paid by the Association.]

Prof. Parrish called attention to the remark in the Treasurer's report regarding the expense attending the office, and moved that the Auditing Committee should consider that subject, and report on it, to see if anything could be done. The motion was carried, and the Committee so instructed.

The Committee on the Certificate of Membership presented a report.

This Committee, consisting of A. B. Taylor, E. T. Ellis, and J. T. Shinn, reported that they had agreed upon a form of words, and the style in which to execute them. They applied to the American Bank Note Company to get an estimate of the cost of engraving on copper or steel, but the artists of the Company were all so entirely engaged as to prevent their undertaking it. Application was then made to a lithographer, who agreed to do the work, but failed to perform his promise; so the Committee concluded to exhibit their design to the Association, and get its final directions, as the Bank Note Company will now undertake it for $150.

On motion of Dr. Squibb, the report was accepted and the present Committee continued, with the instruction to carry out the suggestion of the report by procuring a steel plate, executed in the best style, according to the general character of the design submitted.

On motion of Mr. A. B. Taylor, P. W. Bedford was added to this Committee.

The Committee on Nominations being now ready, they reported the following named gentlemen for officers, and for the several Standing Committees:

*For President,*

HENRY W. LINCOLN, . . . . Boston, Mass.

*For Vice Presidents,*

1st. GEORGE C. CLOSE, . . . . Brooklyn, N. Y.
2d. E. W. SACKRIDER, . . . . . Cleveland, Ohio.
3d. C. A. HEINITSH, . . . . . Lancaster, Pa.

*For Treasurer,*

CHARLES A. TUFTS, . . . . . Dover, N. H.

*For Recording Secretary, (permanent,)*

JOHN M. MAISCH, . . . . . Philadelphia, Pa.

*For Corresponding Secretary,*

P. W. BEDFORD, . . . . . New York.

*Executive Committee,*

THOMAS S. WIEGAND, . . . . . Philadelphia, Pa.
JOHN BUTTERWORTH, . . . . . Boston, Mass.
W. SENNEWALD, . . . . . Saint Louis, Mo.
T. H. BARR, . . . . . Terre Haute, Ind.
J. M. MAISCH, (*Rec. Sec.*,) ex officio, . Philadelphia, Pa.

*Committee on the Progress of Pharmacy,*

ENNO SANDER, . . . . . Saint Louis, Mo.
G. F. H. MARKOE, . . . . . Boston, Mass.
THEODORE KALB, . . . . . St. Louis, Mo.
FERRIS BRINGHURST, . . . . . Wilmington, Del.
P. W. BEDFORD. (*Corres. Sec.*,) ex officio, New York, N. Y.

*Committee on the Drug Market,*

SAMUEL M. COLCORD, . . . . . Boston, Mass.
J. J. THOMSEN, . . . . . Baltimore, Md.
WILLIAM A. BREWER, . . . . . New York.
EZEKIEL SARGENT, . . . . . Chicago, Ill.
W. J. M. GORDON, . . . . . Cincinnati, Ohio.

*Committee on Scientific Queries,*

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| WILLIAM PROCTER, JR., . . . . | Philadelphia, Pa. |
| EDWARD S. WAYNE, . . . . | Cincinnati, Ohio. |
| EDWARD PARRISH, . . . . . | Philadelphia, Pa. |
| R. H. STABLER, . . . . . | Alexandria, Va. |

*Business Committee,*

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| DR. E. R. SQUIBB, . . . . . | Brooklyn, N. Y. |
| F. STEARNS, . . . . . | Detroit, Mich. |
| J. F. MOORE, . . . . . | Baltimore, Md. |

Mr. Maisch here remarked that he had no idea that his name would be presented in connection with the office of Secretary, after what he had said last year; and he felt the same way now. The duties are very arduous, and combine the labor of two officers, as heretofore. He would therefore suggest that some other member be nominated for permanent Secretary.

Prof. Procter and others desired Mr. Maisch to accept the nomination, and he finally consented.

The Association now proceeded to ballot for President, Evan T. Ellis and S. M. McCollin acting as tellers, who reported a unanimous vote had been given for Mr. Lincoln. The President announced this result, and appointed Messrs. Procter and Stearns to conduct the President elect to the Chair, after the election of the remaining officers.

On motion of Mr. Moore, the President was authorized to cast a ballot for the remaining officers and committees; which being in the affirmative, they were declared duly elected.

President Lincoln was now conducted to the Chair, and, amid much applause, responded in the following remarks:

*Members of the American Pharmaceutical Association:*

GENTLEMEN,—For this unexpected and undeserved token of your approbation, you will please accept my warmest thanks. I had hoped to be allowed to remain a silent listener to your interesting debates and discussions, without taking an active part; and it is with many forebodings that I accept the honor conferred. I shall try, however, so to perform the duties which shall devolve upon me, as not to interfere with the welfare of the Association. With the larger lights which have gone before me in this Chair, it should not be easy to go amiss. But I shall rely mostly on the kindness which you have shown in electing me as your presiding officer, to carry me safely through the duties of the office.

In the annual meetings of this Association, Boston has received a two-fold honor,—and the occasions are not dissimilar. The first meeting held here was the first under the Constitution and name, held at a time when the policy of the Association was not fully developed, and when discord and secession, under the garb of "good of its kind," reared their heads and threatened the life of the young genius of Pharmacy. The question was promptly met, fully and warmly discussed, and laid away to be at rest forever. The second honor is the present, when, after a long four years' civil war, our national government, in its contest with that monster which threatened its Constitution and life, has met the question, promptly and warmly, and fully discussed it, and laid it away,—it is to be hoped forever.

As in the first instance members of the Association who had differed from one another, and warmly discussed the question at issue, quickly acquiesced in the decision of the majority, and have ever since continued active and valuable members, so in the latter case, we hope now that the clouds are brushed away from the political horizon, we may have the aid of those who have been prevented from meeting with us for the last four years, and, under the united help of all, the Association will continue its career of prosperity, until its roll of members shall number its thousands, and the time be not far off when the distant shores of the Pacific shall welcome the Association at one of its annual meetings—

"The North and South together meet,
And East and West their tribute bring."

As a member of the Massachusetts College of Pharmacy, and speaking for them, I bid you a hearty welcome to these halls, where you have met once before, and to this city, at your third meeting here. We hope that your stay here will be pleasant and profitable to you, and that you will return to your homes in safety, feeling refreshed and benefitted by your scientific and social gathering.

Mr. Maisch and the other officers elect now assumed their respective duties, and, on motion of the Chairman of the Business Committee, the thanks of the Association were tendered to the retiring officers for their services to the Association.

The Business Committee recalled a former resolution of the Association, to let the reading of scientific papers proceed parallel with other business.

Prof. J. F. Moore now read the preliminary portion of his report on the progress of pharmacy, and gave a general idea of its contents, stating that a portion of the report was yet unfinished, but would be ready for the Secretary soon.

On motion the report was accepted, and referred to the Committee to complete it and give to the Secretary for publication.

A letter from Mr. C. Wiedman, the Librarian of the Royal Bavarian Academy of Sciences, of Munich, was read by the Secretary, acknowledging the receipt of our Proceedings, and requesting a complete set of the Proceedings of the Association; promising an exchange of their Proceedings in return.

The Secretary also stated that he had received, through the Smithsonian Institution, the following work, which he now laid before the Association: "Bulletins des Séances de la Classe des Sciences" of the Academie Royal de Belgique, for the year 1863.

On motion, the Secretary was directed to forward copies of the Proceedings to the above named Academies, and to the Mercantile and Astor Libraries, of New York.

A letter was read from the Secretary of the Pharmaceutical Society of St. Petersburg, Russia, regarding an International Pharmaceutical Congress:

St. Petersburg, May 16, 1865, new style; (May 4, old style.)

Much Respected Sir:

The various Pharmaceutical Associations of Europe have resolved to hold an International Congress of Pharmaceutists at Brunswick, for the purpose of effectually removing many evils existing in the field of pharmacy. (See *Pharmaceutische Zeitschrift für Russland Intelligenzblatt*, No. 1, which is enclosed.)

The great distance between America and Europe renders it perhaps impossible to see your pharmaceutical delegates at the Congress, though the appearance of deputies of American Societies could be but favorable to this international cause. Should you not be able to come or send somebody, I would request you to give me as soon as possible, at any rate previous to the meeting, some information about the condition of North American pharmacy, with particular regard to the questions of the programme. Should you not be able to correspond in the German, I would beg you to write in the English language. The letter need not be prepaid. I remain respectfully,

Your obedient servant,

Dr. G. A. Björklund,
Secretary of the Pharmaceutical Society, and Apothecary at St. Petersburg, Russia.

On motion, the Permanent Secretary was directed to answer this letter.

Mr. Taylor moved to refer the reprinting of the Minutes of the first meeting of 1851, and the Proceedings of 1852 and 1855,

to the Executive Committee, with full power to act; which was agreed to.

The report of the Committee on the Drug Market being called for, Mr. Bedford stated that Prof. Mayer had prepared a schedule of a report, but had been prevented from completing it. Dr. Squibb made some further explanations, and moved that Prof. Mayer be excused from furnishing a report.

Prof. Procter moved to amend by referring any report Prof. Mayer may have to make to the Executive Committee; but after some explanation, this amendment was withdrawn, and the original resolution of Dr. Squibb was carried.

The Report of the Committee on Queries was read by Prof. Procter. It embraced thirty-three queries. The report was accepted, and the Committee continued to procure acceptances of the proposed queries, and report at a future sitting. (See 5th session.)

The Special Committee, appointed at the last meeting (J. F. Moore and J. Brown Baxley), to ascertain who were the delinquent members, and what amounts they owed the Association, reported through Prof. Moore, of Baltimore. The Committee suggested that the names of all members, residing in such States as could be reached by the U. S. mails during the last four years, who have failed to sign the Constitution, and are over three years in arrears, be stricken from the roll. Those living in the Southern States, and who could not be reached by the mails, be granted a further indulgence.

On motion of the Business Committee, the report was accepted, and referred to a Special Committee, consisting of Messrs. Moore, Colcord, Hayiland and Tufts, to report some course to be pursued.

A communication from the Apothecaries and Druggists of Detroit, extending a cordial invitation to the Association to hold its next meeting in that city, was received and read.

Eugene L. Massot, on behalf of the Pharmaceutists of St. Louis, invited the Association to meet in that city.

P. W. Bedford extended a similar invitation on behalf of the Pharmaceutists of New York.

These invitations were received with the thanks of the Asso-

ciation, and laid on the table, until the subject of the next place of meeting comes up for consideration.

On motion of the Chairman of the Business Committee, it was determined to proceed with the reading of the Answers to the Queries of last year.

QUERY 1st.—On Cimicifuga. Referred to E. C. Jones. The answer was ready, but the author not being present, it was postponed.

QUERY 2d.—Accepted by Albert E. Ebert, on Gillenia, not being ready, was continued to him, and in lieu of it, he read, at the next session, a paper on Oil of Amber.

QUERY 3d.—Not being answered, was dropped.

QUERY 4th.—On Camphor Water. Postponed until later in the Session.

QUERY 5th.—Relative to the culture of the Poppy, was accepted by E. R. Smith, of Monmouth, Ill. Mr. Ebert read a letter from Mr. Smith, pleading ill health, and unfavorable, wet weather, at the season of planting the poppy in Illinois, as reasons for his not answering.

On motion, Mr. Smith was excused from answering the Query.

At this juncture, Dr. Squibb presented a specimen of Opium, made by Powhatan Robertson, a Virginia planter, in the neighborhood of Lynchburg, in 1864. It was stated that considerable quantities had been made for the rebel hospital department. Mr. Henchman stated that, during the War of 1812, Opium was produced in New Hampshire, and sold for ten and twelve dollars per pound. It was of good medicinal quality, but the manufacturers afterwards adulterated it, and its use was discontinued.

The specimen was referred to Prof. I. J. Graham for examination, to report at the next annual meeting.

QUERY 6th.—Relative to the production of Citric Acid from the tomato, referred to H. N. Rittenhouse, was not replied to, and was continued for 1866.

QUERY 7th.—On Volatile Oil of Peach Kernels.

QUERY 8th.—On Commercial Honey—and its adulterations.

QUERY 12th.—On the Causes of Decomposition in Syrups, &c.

These Queries, referred to E. S. Wayne, of Cincinnati, received no reply, and were dropped from the list.

QUERY 9th.—Referred to Mr. Bedford, was not answered when called for.

QUERY 10th.—On Pumpkin Seeds. Received no response.

QUERY 11th.—On Regulating Temperature. Referred to P. W. Bedford, of New York. Was not answered at this time.

QUERY 13th.—On the use of Glycerin, to prevent the separation of Apotheme in fluid extracts, and other preparations. Was answered by Alfred B. Taylor. This paper was referred for publication.

QUERY 14th.—On Glycerin as a Menstruum. Was answered by W. J. M. Gordon, and the paper was referred for publication. Mr. Gordon believes that Glycerin is applicable to the extraction of various drugs.

QUERY 15th.—Relative to Valerian grown in New England, as compared with that imported from England and Germany. Was not replied to by Mr. Markoe, who stated that Mr. Dolibar, of Boston, had taken it in hand, intending to report to this meeting, but is not yet ready, and desires to have it continued to him; which was granted.

QUERY 16th.—Relative to the Benzine of Commerce. Accepted by A. P. Sharp, of Baltimore. Received no reply.

QUERY 17th.—On the culture of our indigenous drugs. Was not replied to by Wm. S. Merrill, of Cincinnati, and was dropped.

QUERY 18th.—On fermentation and cryptogamic vegetation, as agents destructive to Pharmaceutical preparations, &c. Referred to Mr. Scattergood. Prof. Procter stated that he knew Mr. S. had been long engaged in prosecuting his investigations in reference to this Query, and that he was not ready to report. On motion, the subject was continued to him, with the request that he would finish it at his leisure.

QUERY 19th.—On Stramonium and Atropia. Continued to Prof. Mayer. Was not answered, and was continued to him for another year.

QUERY 20th.—Relative to the Balsamic products of the sweet

gum tree (Liquidambar styraciflua). Was replied to by Prof. Procter, and the paper referred for publication.

Prof. Moore stated that *sweet gum* is obtained in the lower counties of Maryland; and the results of an examination made by one of his students exhibited results agreeing with those of the paper just read.

QUERY 22d.—Relative to dispensing Cerates and Ointments. Prof. Moore read the reply to this Query by W. S. Thompson, of Baltimore, and it was referred for publication.

Prof. Moore remarked that it was utterly impossible to get lard in Baltimore that could not be dipped out with a spoon. All the lard contains water and salt.

Prof. Procter stated that he had seen in Philadelphia an arrangement like a dumb-waiter, by which ointments were kept in the cellar, and raised into the store when wanted.

The President had in use a similar contrivance at this time.

Prof. Graham's custom was to buy the leaf-fat and render it himself.

Mr. Butterworth had obtained a sediment from lard, which he supposed was lime.

Mr. Maisch said that large quantities of lard had been offered at the U. S. Army Laboratory, containing from 10 to 12½ per cent. of water, kept mixed by means of a little alkali or borax.

Dr. Squibb went into an explanation of the causes of softness in lard, when unadulterated, as being due to the fat of the exterior subcutaneous layers being more fluid than the leaf-fat. Also, that a fruitful cause of bad lard was the food of the animals, slop-fed hogs having fat less firm than when corn-fed.

Prof. Moore stated that so-called leaf-lard in Baltimore, is lard partly deprived of olein by pressure.

Dr. Squibb spoke of the article called perfumer's lard, made in England, which is odorless, white and consistent.

Mr. Massot was in the habit of rendering leaf-lard for his shop use.

Prof. Procter stated that recent English writers had accused the Americans of adulterating lard with 20 per cent. of potato starch jelly.

Mr. Close had been informed that lard for perfumers' use

before alluded to, was prepared by a steam-heating process which had been patented in this country by Mr. Grace, and lard is or was made by it in New York.

Query 4th, on camphor water, was now read by Mr. Markoe, was accepted, and referred for publication. The paper states that the camphor water of the U. S. Pharm. is four times as strong as that of the British authority.

Query 23d.—Mr. Markoe, having been unable to perform the requisite experiments with the plants as to their insecticide powers, requested to be released from further attention to the subject.

The Business Committee proposed that a Committee of three be appointed by the Chair, to examine the specimens and instruments deposited in the rooms for the inspection of the members, and report thereon to a future sitting.

Messrs. Stearns, Markoe, and Stabler were appointed.

Prof. Parrish exhibited a patent hard rubber vacuum filter, easily operated, intended for use by the apothecary. It consists of a funnel, a diaphragm and neck, with a collar externally, to rest on the mouth of the jar for convenience; the vacuum is created by a hard rubber syringe pump attached to the filter by a flexible tube. The filter was tried with some cloudy syrup and operated with considerable facility.

Dr. Squibb had filtered under pressure, and found it to answer well, but that percolation under pressure does not work well.

Prof. Parrish considered the success of percolation depended on the natural process of capillary attraction.

Mr. Colcord had percolated under a pressure of 40 lbs. to the square inch, and at all temperatures, from near the freezing point to 240° F., and he thinks the principle must be abandoned after two or three years' trial.

On motion, the meeting now adjourned to four o'clock, this afternoon.

*Third Session—Sept. 6th. Wednesday.*

The Association convened at 4 o'clock, P. M. The President in the chair.

Prof. Parrish called attention to the result of his filtering experiment at the previous session, and, on motion, it was voted that he furnish the Executive Committee with a drawing and description of the filtering apparatus for publication in the proceedings.

Mr. A. B. Taylor exhibited specimens of fluid extract of Rhubarb, and fluid extract of Cinchona, preserved by means of glycerin, as recommended in his paper read at the second session.

Mr. Maisch, in answer to Query 21, read a paper on the poisonous principle of Rhus toxicodendron. The writer disproves the assertion of Dr. Khittel, that the poison of this plant is due to an alkaloid (ammonia being the only volatile alkaloid present), and shows that its activity is due to toxicodendric acid, an acid peculiar to this plant. Mr. Maisch exhibited a specimen of the aqueous solution of the acid, and crystals of toxicodendrate of baryta.

Query 1, in regard to the seeds of Cimicifuga, being called up, was answered by Edward C. Jones, of Philadelphia, in a paper which was referred.

Mr. Ebert, of Chicago, read his paper on the Oil of Amber and its sophistication, in lieu of the answer to Query 2. Several interesting specimens of amber products, including the pure crude oil, and the pure rectified oil, succinic acid, and some adulterated oil of amber were shown by Mr. Ebert, who found that the oil cost him $1.50 per ounce, when rectified, the amber costing 75 cents per pound, whilst commercial oil is quoted at $1.50 per pound.

Mr. Bedford stated that his experiments to answer Query 9th were not completed, and he desired to have the subject continued for another year. He also stated that Mr. Higgins, who should have answered the Query on Pumpkin Seeds, had removed to Jacksonville, Florida. On motion Query 10 was dropped.

Query 11th.—Relative to the most convenient form of apparatus for regulating temperature below 212°, as required in certain Pharmacopœial processes, was now answered by Mr. Bedford in a paper which he illustrated with apparatus.

Query 24th.—Referring to the therapeutic properties of

Pumpkin Seeds, continued to Mr. Charles A. Tufts of Dover, N. H., was not answered, on the ground that no cases of Tænia had occurred in his locality, and he desired the Query dropped. Prof. Parrish related some instances in which the remedy had proved successful in this disease, in the form of emulsion, and that the remedy was entirely harmless to the patient.

Mr. Close of Brooklyn knew that the mucilage of Slippery Elm had been used with success, and suggested that the question be referred to some Western member. As much as ten per cent. of the population of Ohio are said to be subjects of Tænia! It was also stated as prevalent in East Boston.

Dr. Squibb remarked that Tænia was much more common in Ohio and Kentucky than elsewhere. He believed good results might be obtained if some member from that section standing in a proper relation to the medical profession would take it up.

Mr. Wiegand called attention to Briggs' method of obtaining the fixed oil by Sulphuret of Carbon and approved of it. Mr. Parrish thought the oil much more repulsive to use than the emulsion, which was not unpleasant.

QUERY 25th.—On Gas Heating Apparatus, referred to Mr. Bedford, was postponed for the present on account of the non-arrival of his Apparatus.

QUERY 26th.—On the best formula for Elixir of Valerianate of Ammonia.

Professor Moore stated that Mr. J. Roberts of Baltimore, by whom the Query was accepted, had left the drug business and was not able to attend to it. If agreeable to the Association he would lay before them the formula for this preparation used by the Pharmaceutists of Baltimore. Being invited to do so, he read the formula and exhibited a specimen of the preparation. The recipe originated by a joint action of the Baltimore Apothecaries to resist the use of Hubbel's (Dr. Goddard's) Elixir, much prescribed there.

It was stated that the latter preparation was asserted to contain morphia. Prof. Grahame supposed that it contained valerianate of morphia, but no experimental results had been obtained.

Mr. Maisch hoped discussions of this character would be en-

couraged, as the evil of a continued influx of new patent medicines or secret remedies was on the increase. European Pharmaceutists complained bitterly of their influence on legitimate business. In Germany the plan had been adopted of analysing secret medicines and exposing their composition, and he supposed many mysteries might be discovered if the practice was followed here.

Prof. Parrish, several years ago, had a student who selected for his thesis the analysis of a quack pill, then in vogue as a vegetable medicine. Some boxes were obtained at the counter of the proprietor to prevent mistake, and on subjecting them to distillation with iron filings, the Indian Vegetable came over in the form of *globules of mercury!*

George C. Close read a paper on a recipe for Epilepsy, which was, on motion, referred for publication.

Dr. Squibb stated that this was Dr. Brown Sequard's prescription, afterwards used by Echeverria and others. It has been very effectual in some cases of Epilepsy. Bromide of Potassium is the remedial substance.

Mr. Taylor moved, and carried, that all papers which had been read and not referred, be now accepted and referred to the Executive Committee.

Dr. Squibb exhibited another specimen of Virginia Opium, brought by Mr. Brewer of the house of W. H. Schieffelin & Co., and presented in addition to that already furnished.

Dr. Squibb read a volunteer paper on the economy of Alcohol in percolation, which was on motion referred to the Executive Committee for publication.

[This paper is an attempt in a new direction, fractional percolation accompanied by analysis and therapeutic testings. The object of the writer was to determine in this way when a substance was exhausted by careful manipulation in a percolator, so as to ascertain to what extent the quantity of menstruum might be decreased without interfering with the value of the preparation. It is also suggested, that if at a certain point the percolation be stopped the resulting percolate has the medicinal value of the standard finished preparation of the Pharmacopœia; that is to say, in many instances a simple percolate, in bulk three-fourths to seven-eighths of the officinal quantity from 16 troy ounces of a drug, is equivalent in strength to the officinal fluid extract, so that the large remainder of the alcohol directed in the process is consumed to isolate the remaining one-fourth or one-eighth, as the case may be. If now the process be

stopped and the drugs thrown aside it is argued that the result arrived at in the Pharmacopœia is obtained with much less cost; a little of the drug being sacrificed to save a large portion of costly alcohol.—*Editor Am. Jour. Pharm.*]

Prof. Parrish.—I am sure the members will feel greatly indebted to Dr. Squibb for this valuable paper. It is interesting in a commercial and economical point of view, and will save a considerable amount in the preparation of fluid extracts in future.

Prof. Procter.—This paper is starting investigation in a new direction. It not only determines which portions of the percolate are the most valuable in practice, but it gives the relation of one part to the other, and determines by actual therapeutic experiments the real value of the result. The paper is one which we should be glad to receive because it opens a new kind of investigation. I hope that other gentlemen will pursue it with other preparations, and furnish us with facts arrived at in the same careful spirit.

Dr. Squibb here explained the tables connected with his paper, and stated that when the percolate contained only eight grains of extract in the fluid ounce, this extract was inert. He wished to say a word about the inference drawn by Mr. Parrish as to the saving of alcohol. The object of the paper is to show that the formulas in the Pharmacopœia might possibly be advantageously altered by those empowered to alter them, not that I am going to alter them in my own practice, or that I want any body else to do so. I wish every one to adhere strictly to the Pharmacopœia, and do not want any one to say "if the Pharmacopœia Committee do not choose to get together and alter it, we will alter it ourselves; it has been shown to be practicable." My object has been to offer an argument to the Committee of Revision to revise the formulas or to give us some better ones for saving alcohol. It is the cost of alcohol, in a commercial point of view, which has caused the use of fluid extracts to fall off as it has on account of the corresponding rise in their price. If by a change in the Pharmacopœia we can save this, very good; but, until that change is made, we should submit to the loss.

Prof. Parrish did not yield to any one in respect for the National Pharmacopœia, but thought Dr. Squibb too strict. He argued that in making a quantity of fluid extract he was justified in stopping the percolation when the drug was exhausted, if he had not consumed all the specified quantity of alcohol. The Pharmacopœia does not tell exactly what shape of percolater to use, for there are differences in the angles of funnels. Every body must use his judgment, and interpret the Pharmacopœia according to common sense.

Mr. Taylor.—Mr. Parrish might be competent to judge, but it would be unsafe to entrust it to every body.

Dr. Squibb.—The matter comes to this. The Pharmacopœia says that four pints of liquor will exhaust a certain amount of a drug; but you insist that less will do it, and each adopts this "higher law" proceeding. It

is quite possible that both Mr. Parrish and myself might judge when the proper point was reached; but it is our duty as examplers to say that we must not rely upon our own judgment and teach others so, but go strictly according to the text.

Dr. Pile.—Suppose we say that we will each accept your paper according to his own opinion, and are very much obliged for it.

Dr. Squibb.—Then I have done more harm than good. If I am to displace better authority in giving this information, then Mr. Taylor would say, "you had better have kept that for the committee; it will open the door for others." I maintain that we are all fallible. I am sorry to have diminished respect for what should be the authority for all druggists.

Mr. Close.—I think we want more individual judgment. If Dr. Squibb can produce better preparations at less expense, he should be at liberty to do so.

Prof. Procter.—I am not quite so strict as Dr. Squibb. If a man can make fluid extracts by using one pint of alcohol where the Pharmacopœia directs two pints, I think he has a right to do so, *provided* the result is the same as that of the Pharmacopœia. I am convinced that the quantity of menstruum is not to be followed in all cases, and was adopted mainly that inexperienced Pharmaceutists might have a safe guide.

Dr. Squibb.—Here comes in another argument. We employ assistants; suppose we trust our improvements to them, who are not skilled—have not the judgment. How can we be certain of the results if they be authorized to depart from the officinal standard?

Mr. Maisch thought Dr. Squibb had changed his mind within a few years, referring to the present officinal formula for compound extract of Colocynth, which was suggested and used by Dr. Squibb long before the Pharmacopœia of 1860 was issued, and which he approved of. In percolation, when working on a large scale, he (Mr. Maisch) had found it necessary to obtain on an average a gallon of tincture from a pound of a powdered drug, or three times the quantity of the Pharmacopœia, to insure exhaustion.

Dr. Squibb explained why he had made the innovation in reference to the use of Scammony resin at a time when good Scammony was difficult to procure, and that the proportion was based on the best authorities connected with the revision of the Pharmacopœia.

Prof. Parrish thought this a clear case of "higher law." Dr. Squibb is obliged to take some law, and takes the highest; he (Mr. Parrish) was not disposed to decry higher law.

Mr. Taylor.—I should be sorry to see any deviation from the Pharmacopœia. We should bring forward our improvements, discuss them, bring them to the notice of the Committee, and in this way have the desired corrections made, but meanwhile adhere to the Pharmacopœia.

Prof. Procter.—Let us go to work with Dr. Squibb's article for a text, and carry out the idea. When we have a volume of testimony sufficiently large, let us make the change.

Prof. Parrish.—If we follow the intention of the Pharmacopœia in fluid extracts, in preparing solid extracts we deteriorate them, because (as Dr. Squibb has shown) the last percolations are inert.

Mr. Colcord.—The great object to be attained in preparations is uniformity; this we cannot get if we differ. There must be some standard, and as long as the Pharmacopœia is adopted it should be adhered to.

The meeting now adjourned to 8 o'clock this evening.

*Fourth Session—Wednesday evening. Sept. 6th.*

The meeting was called to order by the President, near the hour adjourned to.

The Executive Committee proposed the following gentlemen for membership:

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| John J. Fellows, Boston, Mass. | William C. Brigham, Boston, Mass. |
| James L. Hunt, Hingham, " | William S. N. Allan, Newport, R. I. |
| George W. French, Boston, " | Solomon Carter, Boston, Mass. |
| Henry Canning, " " | |

On motion a ballot was held; Messrs. Rittenhouse and Butterworth, acting as tellers, reported the unanimous election of the candidates.

The Committee appointed at the second session to audit the Treasurer's account, reported that they had attended to the duty and found all accounts correct. The report was on motion accepted, but the Committee were continued to report also on the suggestion of the late Treasurer, regarding the payment of the travelling expenses of the Treasurer when attending the annual meetings.

Prof. Parrish moved the following amendment to the Constitution, to be acted on at an early session of the next annual meeting:

*Resolved*, That Section 2, Article III, be amended by substituting the words "Local Secretary" for "Corresponding Secretary;" and that Section 6 be amended to read thus:

"The Local Secretary shall be elected annually at the last session of the annual meeting, and shall be a resident of the city at which the next annual meeting of the Association is to be held. It shall be his duty to assist the Permanent Secretary in his duties, to co-operate with any local committee in making arrangements for the annual meeting, to correspond with the Chairmen of the several Committees and with other members in advance of the meeting, promotive of its objects, and to have custody of specimens, papers, and apparatus destined for use or exhibition at the meetings. He shall act as Secretary at the first meeting, or

until another shall be appointed, in case of the absence of the Permanent Secretary."

*Also*, That in Section 4, defining the duties of the Permanent Secretary, after the words "shall be charged with," the words "the necessary foreign and scientific correspondence" shall be added; so that it shall read, "shall be charged with the necessary foreign and scientific correspondence, and with editing, publishing, and distributing the Proceedings of the Association, under the direction of the Executive Committee."

*Also*, That wherever the term "Corresponding Secretary" is used in the Constitution, the term "Local Secretary" shall be substituted.

These resolutions lie over for one year.

On motion of the Business Committee, Ferris Bringhurst, of Wilmington, was invited to exhibit his specimens and offer his remarks.

Mr. Bringhurst exhibited, 1st, a paste brush, with a leather collar attached, which prevents the paste from reaching the hands, and at the same time acts as a cover to the paste pot, keeping out dust, etc., and preventing inspissation; 2d, a tin can, fitted with a bottle, with a layer of porous paper between, up as far as the shoulder, a lid slipping over, to keep out light and dust. The paper retains any oil that may drip. 3d, a sample of simple cerate, made with yellow wax, which prevents rancidity. He used it also in glycerin cream, and in suppositories. For the latter he uses seven parts butter of cacao and one part of yellow wax, which gives consistence in warm weather, and toughness in cold. He gently heats the moulds. When extracts are to be introduced, he liquifies them with a little water, and the cacao butter added in a melted state, thoroughly mixed, and poured into the moulds, which are then refrigerated.

Mr. Ebert preferred using powdered extracts for this purpose, powdered as directed in the Prussian Pharmacopœia, with sugar of milk. He found no difficulty in making suppositories in five or ten minutes, by pouring the mixture into refrigerated moulds.

Mr. Bringhurst thought powdered extracts apt to precipitate, and he was in the habit of adding the fat just before chilling.

Mr. Ebert prevents precipitation by stirring with the right hand and pouring with the left.

Mr. Bringhurst also had used powdered extracts, but desired that there should be some recognized plan for general adoption.

Mr. Markoe found no difficulty with either Taylor's or Parrish's plans, as published.

Mr. Ebert said that liquid extracts were apt to separate, and produce streaky suppositories.

Mr. Bringhurst.—Some physicians prescribe borax; the suppositories cool quickly, and are hard. He dispenses suppositories in a paper box, with cotton between them.

Mr. Taylor uses a vessel of tin, shaped like a coffee pot, and keeps the powder in suspension by a rotary motion; and uses yellow wax for hardening, and sugar of milk for extracts.

Mr. Bedford stated that in New York suppositories generally are made by mixing the materials in a mortar and rolling them out.

Mr. Stearns.—In Detroit they are not often prescribed. He moulds them in a tube of the size of the suppository syringe, and then cuts the cylinder into the required number of pieces.

Prof. Parrish prefers spermaceti to wax, and dispenses suppositories in a paper box lined with tin foil.

Mr. Stearns works suppositories as soft as possible, and coats them afterwards with wax, by dipping.

Mr. Bringhurst finds this plan to fail, by the wax cracking.

Mr. Close adds a drop of syrup to every ten grains of cacao butter.

Prof. Procter stated that a member of the British Pharmaceutical Conference had ventilated the question of yellow wax in cerates, and takes the same ground as Mr. Bringhurst in regard to its preventing rancidity.

The Auditing Committee presented the following report:

The Committee to audit the Treasurer's account would recommend that hereafter the expenses of railway or other fare incurred by the Treasurer in going to and from the meetings, be defrayed by the Association.

(Signed,) F. Stearns, *Chairman*,
H. Haviland,
J. F. Moore.

The report was accepted, and the Committee discharged.

The question before the Association now being on the adoption of the recommendation of the Committee, Dr. Squibb proposed to substitute "railway and other fare" by "travelling expenses," as in the case of the Permanent Secretary. The amendment was decided in the negative, and the recommendation of the report adopted.

The report of the Committee on Specimens was read, accepted, and referred to the Executive Committee for publication.

Prof. Parrish called attention to a specimen of Carthamus on exhibition, labelled "Saffron."

Mr. Markoe.—We sell Safflower for Saffron in Boston almost altogether; true Saffron is almost unknown here. When people ask for Saffron they mean Safflower.

Prof. Parrish.—We sell Saffron; we should think it an absolute fraud to give Safflower.

Prof. Procter.—In Philadelphia two kinds of Saffron are found in use,—the genuine, and a so-called Saffron composed of Marigold petals, with very little genuine in it.

The question being asked what price the gentlemen from Philadelphia paid for their Saffron, several stated that they paid from $24 to $28 per lb.

Mr. Maisch.—Saffron is, or used to be raised to a certain extent by German settlers in the interior of Pennsylvania, which found its way to Philadelphia. It brought its weight in silver coin.

Mr. Heinitsh uses Saffron raised in Pennsylvania, and has bought it as low as $8 per pound.

Prof. Procter.—Mr. Dix, of New York, brought a variety of specimens of commercial Saffron to the meeting held in New York in 1860, and gave his experience as a drug merchant. He showed that Saffron could not be raised here for commerce, because labor was too high.

Mr. Colcord.—In Boston true Saffron is not saleable, the price being over $20 per pound in New York. The Saffron sold is not what we understand by dyers' Saffron; it is called Saffron, and is neither the Safflower of commerce nor the pistils of Crocus Sativus.

Mr. Markoe remarked that Aqua Cinnamomi, made by the officinal process with true Oil of Cinnamon, soon became turbid.

Prof. Procter explained the cause to be the oxidation of the oil and the formation of Cinnamic Acid, which crystallizes from the water. Chinese Oil of Cinnamon yields a water which remains clear for a much longer time.

S. Mason McCollin exhibited Chapman's Spine Bag. It is largely used in England for sea-sickness, convulsions, &c. It consists of an India rubber bag, divided into three compartments at the top; one being one-third, the second one-half, and the third the whole length of the bag. Ice broken in small pieces is put into the several compartments, so that its effects are extended over the whole surface.

Mr. Stearns had seen the same instrument in New York.

Mr. Ebert read a paper written by James W. Mill, of Chicago, entitled "Fidelity to the Pharmacopœia." On motion it was referred to the Executive Committee for publication.

Mr. Charles A. Tufts, on behalf of the Massachusetts College of Pharmacy, presented to the American Pharmaceutical Association a likeness of our former associate, Charles T. Carney.

On motion, the meeting adjourned at 10.35, P. M., to meet to-morrow morning at 10 o'clock.

*Thursday Morning—Fifth Session. September 7th.*

Pursuant to adjournment, the Association met at 10 o'clock, President Lincoln in the chair.

On motion, the reading of the minutes was dispensed with.

The amendments to the Constitution, as prepared by the late Executive Committee, were called up.

The first amendment altered Art. II., Sect. 2d, so as to require all applicants for membership to make the application in writing, which was adopted.

The second amendment, proposing to strike out the words "signed the Constitution" in Sect. 3d of Art. II., after a long discussion, was put to vote and lost, there being less than three-fourths of the members present in the affirmative.

The third amendment, requiring the payment of the annual contribution in advance, was unanimously adopted.

The fourth amendment, relative to the period of arrearage which shall deprive a member of his right of membership, was lost.

The fourth and fifth amendments, relative to an initiation fee, were, after some discussion, negatived.

The proposition requiring applicants for membership to be "recommended by two members in good standing," was adopted.

The next proposition, relative to re-admitted members paying the old balance, to render them life members, was lost.

The next proposition, relative to an extra assessment, was also rejected.

Likewise, a proposition requiring members changing their residences to notify the Treasurer and Chairman of the Executive Committee.

Frederick Stearns now read two volunteer papers, entitled, "On the Production of Peppermint in Michigan," and "On Rhubarb Wine," both of which were accepted, and referred for publication.

Prof. Alexander H. Everett exhibited specimens of metallic magnesium in the form of ingot, wire and ribbon, and gave some information regarding its uses in the arts, particularly for signal lights, and for photographic and pyrotechnic purposes. He also stated that a company was formed for manufacturing it

on a large scale. The ingot exhibited was of English origin, the wire and ribbon being made in New York.

The place and time of the next annual meeting being called up for discussion, E. L. Massot repeated his invitation extended to the meeting to hold the next annual meeting at St. Louis.

Frederick Stearns spoke in favor of Detroit, and promised to the Association a hearty welcome on the part of the druggists and apothecaries of his city.

Prof. Moore gave a standing invitation from Baltimore to meet in that city as often as convenient.

J. M. Maisch moved that, when we adjourn, we adjourn to meet in St. Louis, next year.

Prof. Parrish offered the amendment to substitute "Detroit" for "St. Louis."

The amendment was adopted, and the motion, as amended, carried.

Dr. Squibb moved to meet next year on the third Wednesday of August, at 3 o'clock, P. M.

Prof. Parrish suggested to substitute "fourth Wednesday" for "third Wednesday," which was agreed to.

The following resolution was now adopted, as a whole, unanimously:—

"*Resolved*, That, when we adjourn, we adjourn to meet in Detroit, Michigan, on the fourth Wednesday of August, next year, at 3 o'clock, P. M."

Thomas S. Wiegand read a paper on the obligations of Pharmaceutists in respect to the instruction of those in their employ, which was, on motion, accepted and referred for publication.

The Business Committee informed the Association that Dr. Bartlett was present, having in his possession a paper, accompanied by drawings, on a new form of vacuum apparatus, by our fellow-member, N. Gray Bartlett, of Chicago. Dr. Bartlett, on invitation, read the paper and explained the drawings, all of which were, on motion, referred to the Executive Committee for publication.

[This apparatus is analogous to the one in use, several years ago, by the Shakers at New Lebanon, attached to their vacuum pan. The instrument was operated by a full supply of water derived from a reservoir

on the hill side, above the works. It was not found to answer well, and they have since substituted the air-pump.—EDITOR.]

Dr. Squibb thought there was some fallacy in this apparatus—some want of practicability in application—could not say exactly where it is but was under the impression that the difficulties of condensing in a vacuum will be the main obstacle to its meeting the expectation of the inventor. Water boils in a vacuum at about 67° F., and alcohol at 27° F.; and at the best working vacuum obtained in practice, the temperature at which water can be rapidly driven off is 140° F. Even at this latter temperature, it has not been found practicable to condense the vapor by means of a worm, or in any other way than by injecting water, finely divided, into the vapor. This plan of condensation by injection is entirely inapplicable to alcoholic vapor, for obvious reasons. He further believed that the idea of the apparatus was not new, though creditable to the inventor, and regretted his not being present to give his own reasons.

Mr. Maisch expressed his views as corroborating those of Dr. Squibb.

The Executive Committee brought forward the following names of candidates for membership in the Association, they being endorsed as required by the Constitution.

Alonzo Robbins, of Philadelphia, Pa.

G. A. Newman, of Brooklyn, N. Y.

Messrs. Asahel Boyden, of Boston, and E. L. Massot, of St. Louis, being appointed as tellers, reported their unanimous election.

On motion, Mr. H. W. Lincoln was requested to furnish to the Executive Committee, for publication, a cut and description of the herb cutter which has been on exhibition in the rooms during the meeting.

Dr. Wilson H. Pile stated that his paper* and apparatus had not yet arrived, and proceeded to give some figures contained in one of his absent essays, regarding the meaning, by the Pharmacopœia, of the term "per cent." in the case of whisky and brandy.

Dr. Pile said the term "per cent." invariably means by weight; and if volumetric per centage is intended in any case, the term must not be omitted. A confusion arises from the fact that manufacturers give the per centage by volume, because this figure is higher than the figure for the per centage of the same liquor by weight, and it makes the liquor appear stronger than it is. But the Pharmacopœia understands per centage to mean by weight only. Where it is admissible, it would be well to indicate both per centage by weight and by measure.

Prof. Procter.—This has been desired by many.

Dr. Squibb.—The difficulty arises from an oversight by Dr. Wood, in not discriminating in his commentary.

*This paper was read at the Sixth Session. See page 438.

The Chairman of the Committee on Scientific Queries read the report in full, with the acceptances, which was accepted, and referred to the Executive Committee for publication in the minutes.

*To The American Pharmaceutical Association.*

The Committee on Scientific Queries, appointed at the last Annual Meeting, report the following as the result of their labors:

QUERY 1st.—What is the best form of Apparatus by which pressure steam, generated by gas or petroleum heat, may be applied for evaporation, distillation, etc., on a moderate scale, at the working counter of the shop, so that the condensed steam shall return to the boiler, combining efficiency and compactness with economy?

*Accepted by William Procter, Jr., of Philadelphia.*

QUERY 2d.—Pharmaceutical Business—its management.

*Accepted by Frederick Stearns, of Detroit.*

QUERY 3d.—What are the comparative advantages, as to economy and efficiency, of Percolation and the Press?

*Accepted by Dr. R. H. Stabler, of Alexandria.*

QUERY 4th.—What form of mill is best adapted to the use of the Pharmaceutist? *Accepted by Dr. R. H. Stabler, of Alexandria.*

QUERY 5th.—What material is best adapted for Press Cloths, combining strength, cheapness, and slight absorbing power for liquids?

*Accepted by Dr. R. H. Stabler, of Alexandria.*

It has been asserted that Senna contains crysophanic Acid, and that its activity is probably due to that principle.

QUERY 6th.—Can crysophanic Acid be isolated from either Alexandria or India Senna, and, if so, can it be proven that this Acid contributes in greater or less degree to the purgative power of Senna and Rhubarb? *Accepted by F. W. Sennewald, of St. Louis.*

QUERY 7th.—In what respects do the sensible properties of the leaves of Hyoscyamus and Belladonna, grown and cured in the United States, differ from the leaves of these plants imported from England and Germany, as presented in commerce; do the latter contain more of the respective alkaloids than the former; and, if so, is this difference due to soil, climate, and culture? *Accepted by Lewis Dohme, of Baltimore.*

QUERY 8th.—What are the impurities of cheap Commercial Glycerin; can they be removed economically without distillation, so as to render the Glycerin colorless, odorless, and cheap; and, if not, what is the best practical process and apparatus for the distillation of Glycerin with superheated steam? *Accepted by James F. Babcock, of Boston.*

QUERY 9th.—What are the impurities in Commercial Valerianate of Ammonia; can it be purified, without decomposition, from Butyrate and other salts, when present; if not, what is the best process for obtaining pure Valerianic Acid from the Amylic Alcohol of Commerce, and what are the most eligible forms for administering the salt in question?

*Accepted by N. Gray Bartlett, of Chicago.*

QUERY 10th.—What change can be made in the composition of Emplastrum Picis cum Cantharide that will render its consistence firmer in warm weather? *Accepted by George C. Close, of Brooklyn.*

QUERY 11th.—What is the best course to be pursued by the apothecary in economizing the alcohol used in preparing fluid extracts, etc.?

*Accepted by N. Gray Bartlett, of Chicago.*

QUERY 12th.—An essay on Podophyllum Peltatum, chemical and therapeutical, which shall settle the questions now pending, relative to its active principle or principles. *For general acceptance.*

QUERY 13th.—Is Commercial Extract of Quassia made by the U. S. P. process; if not, by what process; and can the former process be advantageously revised?

*Accepted by Edward C. Jones, of Philadelphia.*

QUERY 14th.—How far may Alcohol and Ether be substituted by other liquids, in the preparation of the officinal oleo-resins, without detriment to these products?

*Accepted by Henry N. Rittenhouse, of Philadelphia.*

QUERY 15th.—Cotton root is said to be an efficient Emenagogue, and cotton seed to have proved effectual in treating intermittent fever; do these portions of the Gossypium possess active principles?

*Accepted by E. W. Sackrider, of Cleveland.*

QUERY 16th.—In the destructive distillation of Tobacco, by the process of the U. S. Pharmacopœia, to get the Empyreumatic Oil, Malate of Nicotina has to be decomposed. Can a better preparation be obtained by liberating the Nicotina with a sufficient quantity of potassa before distillation, reducing the heat to the minimum degree necessary to extract the alkaloid? *For general acceptance.*

QUERY 17th.—Is the Volatile Oil of Chenopodium anthelminticum the only active principle it contains having vermifuge properties?

*Accepted by Thos. S. Wiegand.*

QUERY 18th.—An essay on Sassafras Officinale, embracing the whole plant in its relations to Chemistry and Pharmacy.

*Accepted by William Procter, Jr., of Philadelphia.*

QUERY 19th.—What is the best formula for a granular effervescent Citrate of Magnesia, which shall be permanent, readily soluble in water and suitable for general use? *Accepted by James W. Mill, of Chicago.*

QUERY 20th.—What is the best means by which Cinchona may be deprived of Cinchotannic Acid, so that its alkaloids, in the form of kinates, may be obtained in a permanent liquid form?

*Accepted by William Procter, Jr., of Philadelphia.*

QUERY 21st.—Oleum Erigerontis Canadensis is considered to be the active principle of the Canada fleabane; is this correct, or is there another fixed principle possessing medical properties?

*For general acceptance.*

QUERY 22d.—What improvements can be suggested in the preparation of the Officinal Syrup of Lactucarium?

*Accepted by P. W. Bedford, of New York.*

QUERY 23d.—Why should not Lactucarium be produced in the United States in sufficient abundance and cheapness to supply all our wants; and what are the best practical suggestions for its culture and preparation? *Accepted by Alfred Mellor, of Philadelphia.*

QUERY 24th.—To what principle does Scutellaria lateriflora owe its medical properties? *Accepted by G. F. H. Markoe.*

QUERY 25th.—What is the best process of benzinating lard and simple ointments; can benzinated lard be employed for mercurial ointment, so as to prevent its strong tendency to become rancid, without hurting its medical qualities, and in what other ointments may this form of lard be advantageously used? *Accepted by Thomas Dolibar, of Boston.*

QUERY 26th.—An essay on Bees-wax—its Commercial and Chemical history—the best method of bleaching it without injury to its physical and medical properties, and what substitutes have been found that may be used in emergencies. *Accepted by James F. Babcock, of Boston.*

QUERY 27th.—Is Hyoscyamia a permanent principle like Atropia; which is the best part of the plant for its extraction; and what impediments exist to its manufacture as a pharmaceutical preparation for medicinal use?

*Referred to Prof. A. Wadgymar, Ph. D., of St. Louis.*

QUERY 28th.—What is the most eligible form of apparatus yet discovered, or which can be suggested, for preparing pills of uniform size, at will, and can it be adapted to the wants of the apothecary on a moderate scale? *Accepted by Ferris Bringhurst, of Wilmington, Del.*

QUERY 29th.—What are the advantages and disadvantages of coating pills with sugar or other substances; and what is the best method of coating pills extemporaneously for dispensing?

*Accepted by S. Mason McCollin, of Philadelphia.*

QUERY 30th.—What is the most perfect and reliable process of manipulation to produce *Liquor Ammoniæ Acetatis*, pure, and in a neutral or slightly acid condition?

*Accepted by Dr. W. H. Pile, of Philadelphia.*

QUERY 31st.—It having been satisfactorily ascertained that the actinic (or chemical) rays of light are intercepted by orange-colored glass, so as not to injure drugs and medicines, it is queried in what way this means can be most eligibly and satisfactorily applied, in the shop or store room, based on the results of trials in various ways.

*For general acceptance.*

QUERY 32d.—What are the best approximate methods of testing the extracts, fluid extracts, and tinctures, so as to increase the accuracy and certainty of the means of describing and judging of these.

*Accepted by Edward Parrish, of Philadelphia.*

Prof. Moore presented the report of the Committee relative to arrearages, &c., referred at a previous session.

Dr. Squibb moved that the report be accepted and adopted, and that the Committee be allowed further time to complete their report.

After some discussion by Messrs. Maisch and Stearns, the report was disposed of in accordance with the motion of the Chairman of the Business Committee.

James T. Shinn, offered the following resolution, which was seconded and carried:

*Resolved*, That the heartfelt thanks of the Association be tendered to the Massachusetts College of Pharmacy, and the members of the profession in Boston, for the hospitable and courteous attention bestowed upon their guests, rendering their visit eminently agreeable, and affording food for pleasant recollection in the future."

The Association then adjourned until to-morrow morning at 8 o'clock.

*Friday Morning—Sixth Session. September 8th*, 1865.

The Association was called to order at 8.30 A.M., the President in the Chair.

In the absence of the Secretary, Mr. Wiegand, the Chairman of the Executive Committee, was appointed Secretary *pro tem.*

Mr. Bedford exhibited and explained various kinds of gas-heating apparatus. He stated that his paper in answer to query No. 25 was not finished, and he desired the privilege of finishing it for publication.

On motion of the Chairman of the Business Committee, it was resolved, that the paper of Mr. Bedford be received as if presented, and that the writer be allowed time to complete it and hand it in for publication.

Dr. Squibb gave a short description of a gas heating apparatus with a fire-clay lining.

Prof. Procter alluded to Bullock & Crenshaw's gas apparatus, used with a fire-clay cylinder, and said that they lay great stress on the value of this clay cylinder, which absorbs heat and gives it out, tending to equalize the effects.

Dr. Pile and others spoke on the subject.

The Business Committee stated that Dr. Pile's paper and specimens had arrived, and proposed that the latter be examined by the Committee on Specimens, and be incorporated into their report, which was adopted.

This Committee, also, brought up the subject of an increase of the annual contribution to three dollars, as unfinished business of last year.

At the suggestion of A. B. Taylor to place an extra assessment of one dollar for the next year upon each member, the Executive Committee presented the following:

"*Whereas*, The expenses of the Association have been greatly increased within the past four years through various well-known circumstances; therefore, '*Resolved*, that an additional special assessment of one dollar for the year 1866 be required from each member, and that the obligation to meet this assessment by members be the same as those which apply to the annual dues.'"

Considerable discussion took place, Dr. Squibb, Messrs. Taylor, Tufts, Rittenhouse, Shinn, Procter, Markoe, Butterworth and

Moore, speaking in favor, and Prof. Parrish in opposition. The latter taking the ground that there were many young members struggling along to whom the expense would be a burden.

The resolution was adopted.

The Business Committee moved the following resolution, which was adopted:

"*Resolved*, That the Executive Committee be authorized to fix the price at which the Proceedings shall be sold."

The Business Committee introduced the recommendation to charge life members with the price of the Proceedings; during the discussion it was stated that such a course involved an alteration of the Constitution, and could only be accomplished by the unanimous consent of the life, and all other members.

The motion to charge life members with the Proceedings was lost.

It was also, resolved, to postpone indefinitely the subject of prizes, prize queries and medals.

A suggestion to appoint the Committee on Credentials for the next meeting at this time, met with strong opposition, and was lost.

Prof. Parrish offered the following, which was unanimously adopted:

*Resolved*, That the permanent Secretary be directed to have custody of the specimens, models, pictures, plans, books and periodicals belonging to the Association, with the privilege of depositing them in the Hall of the College of Pharmacy of Philadelphia, if that Institution should offer facilities for their proper storage and exhibition.

Dr. Squibb said there was a portrait of the late Mr. Carney, presented to the Association by the Massachusetts College of Pharmacy. I move, as Chairman of the Business Committee, that this picture be accepted, with the thanks of the Association to the Massachusetts College of Pharmacy, and that it be placed among the articles in possession of the Association. The motion was carried.

Dr. Squibb stated that the only business to come before the Association was the recommendation of the President in regard to the Internal Revenue Law, as it affects licenses and sales and the cost of alcohol used in Pharmacy.

Prof. Parrish read a paper on the English Revenue Law, with special reference to alcohol, which was accepted and referred.

Dr. Squibb. This paper forms a good starting point for the subject before us; it shows the amount of machinery adopted to adulterate alcohol for pharmaceutical purposes, and yet the only good purpose claimed to be subserved is that ether and chloroform may be made from methylated spirit, since it is admitted on all hands that for tinctures and the general uses of Pharmacy it is totally unfit. To ether and chloroform, which are manufactured on the large scale, the argument is not prominently applicable, these articles not coming within the scope of general pharmacy, as do tinctures, &c. Even this adaptation to making ether is doubtful, since in my experience the presence of any of these hydrocarbons tends to the production of unclean ether. Of late years, and particularly since the rise in alcohol, manufacturers have in some way, by close distillation or otherwise, debased the quality, so that from 95 per cent. alcohol, from which ether used to be well made, it cannot now be made clean; made from the same alcohol, by the same apparatus, by the same process, it is not clean enough for anæsthetic purposes; and to obtain it so, it has become necessary to resort to the use of Cologne spirit. Just such a step had to be taken, some years ago, when 95 per cent. alcohol was as rare as Cologne spirit is now. Good clean ether could then be made from 85 per cent. alcohol—as clean as was afterwards made from 95 per cent., or now from Cologne spirit. As the market for alcohol rises, so the makers produce worse alcohol, containing more hydrocarbons. The legitimate uses of Pharmaceutists are not benefitted by any adulteration of spirit. Besides this, the price of alcohol does not affect the Pharmaceutist to the extent that is urged. Whatever the price of alcohol, he obtains the same profit he formerly did; so do the manufacturers' profits remain the same. Hence, I maintain that the interests of Pharmaceutists are not so deeply involved in this question as at first sight they appear to be. The consumer is the person who pays. If we wish to diminish the price to the consumer, it is well to take up the question. In regard to the machinery necessary to lessen the price of alcohol to Pharmaceutists, as described in Mr. Parrish's paper, I suppose that a similar plan might be adopted here; but I cannot see in what manner it could conduce to the benefit of the Pharmaceutist, as such, independently of the considerations which exist in reference to the consumer.

The next point is this: the object of the law is to raise revenue, which is rendered necessary by debt. This revenue must be levied and paid by taxes upon articles of consumption. Is not alcohol as good an article for taxation as any other? Should we desire to evade these taxes in their application to Pharmacy, simply because we have so careful a scrutiny of the interests of the consumer? Should we not rather allow them to be imposed without objection on our part? If, however, after a fair trial, it should be found that it bears unequally, that it falls with more severit

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upon us than upon others, then we can take the matter up, and bring it before the proper authorities. I am not opposed to any measures having in view an equalization of taxation, so far as they are intended to equalize; but my impression is that every step that is taken, by any special business, or any special interest, to reduce taxes, is a step towards something like repudiation. I hope nothing will be done by this Association in that direction. Let us come up manfully and willingly and pay these taxes, and accept also the fact that the people in authority at Washington know what they are about. Let us pay such taxes as may come upon us, until the time comes when we can show that they are not equitably placed. I am opposed to any interference with the National legislation upon the subject of taxation of alcohol. With regard to licenses, I think that, upon fair representation of all the facts bearing upon the case, Congress has decided that the laws, as they exist, are necessary. There are, undoubtedly, some minor points, in regard to which fair objection may be made. For instance, we take out a manufacturer's license, and pay a duty of six per cent. A manufacturer of patent medicines pays a stamp duty only, which, as the law now stands, is but four per cent. A legitimate Pharmaceutist, therefore, has to pay a larger tax than those engaged in the manufacture of illegitimate preparations. The operation of the law, therefore, is to encourage the sale of quack or patent medicines, to the prejudice of the legitimate business of the apothecary. Upon this fact being brought before the proper authorities, I have no doubt that the law will be amended, so as to make the stamp duty exceed the sales duty. Now, it is perfectly fair to represent anything of that kind, and let them rectify it, if they please. If not, do not let us undertake to make them do it. Let us rather rest under it. Forbearance and self-denial should be cultivated in an association like this—now, if ever. Here we should give all our influence against every action tending, even in a lateral direction, towards repudiation.

Mr. Colcord.—The member from Brooklyn has expressed my opinion, exactly. I do not see why this Association should undertake any action in this matter, when there is no possible advantage to be derived, even if they succeeded in amending the law. The principles upon which we should stand, and the way in which we should meet this question, have been exactly stated by Dr. Squibb. A year or two ago, there was a tax put on patent medicines—one cent on every twenty-five cents—four for a dollar. They raised a committee to go to Washington, and they wanted me to go on that committee. I told these gentlemen, "If you raise a committee to show the Government where it can advantageously lay an additional tax, or where they can put a tax on something better, I will go." The tax is none too large. It comes upon a class who can afford to pay it. The only difficulty is that it bears unequally. If we can equalize the taxes, it will be all right.

Prof. Procter.—Dr. Squibb spoke of the price of alcohol in its relation

to the profits of the Pharmaceutist. There is another view of the matter which he did not take. I think, if we let the price of alcohol remain as it is, we must stop making fluid extracts. We must either stop making these extracts—for the poor cannot afford to pay the price we must ask for them—or we must seek some means of getting alcohol cheaper. I supposed that our action was to be directed to this point, and that some method was to be devised by which the Pharmaceutist could obtain alcohol to use in his business, without being subject to the taxes, which are properly enough laid upon the consumer of the article, as a beverage. A very large proportion of the alcohol is used in the form of tinctures. It does not do to say that the apothecary gets the same profit, or that they can add the same per centage. If we did, we should charge fifty cents per ounce for tinctures, whereas we charge nearly the same price as heretofore. We have to meet a class of customers who cannot afford to pay present prices. The physicians have come to prescribing alcohol to a very large extent. This makes it additionally onerous. I speak from every day experience in my store, when I say that the poor cannot afford to pay the prices for fluid extracts which we are compelled to charge.

Dr. Squibb.—There is one point connected with this matter of the poor to which I wish to call attention. This same class of poor, who formerly earned but one dollar to one dollar and a half per day, now earn two or three dollars per day. The mechanics, those working in shops, whose families are to be medicated, now get three dollars and fifty cents per day, where formerly they received but two dollars per day. They are abundantly able to pay for the increased cost of medicines. They demand additional wages for that. A part of these additional wages justly belong to the apothecary, and, through him, to the Government. I have some mechanics in my employ, whose wages have been increased to three and a half per day, upon the very ground that, as consumers, they must pay these advanced prices. Now, these men do not, on the average, make more than five, and often only four days in the week. They live better now to work five days than they did to work six. The reason is, because Mr. Procter charges the old prices for medicines, while they are demanding increased wages under the new order of things. Their families live well. Butchers will tell you that the high cost of meats is owing to the fact that families that formerly bought second and third quality pieces, are now able, owing to the increase of wages, to buy the best. Nobody wants the second and third pieces. I mention these facts, to show that these people are able to pay for the medicines they require.

Mr. Colcord.—It is not the apothecary's business to look after the [pecuniary] interests of the patient. That belongs to the physician. He should write recipes adapted to the means of his patients. If he wants to cheapen things for his patients, he can write for cheaper remedies more easily than the apothecary can give what is ordered by the physician at half price. For instance, if senna infusion is wanted, let the physician

prescribe senna, and let the patient infuse it himself. Where the apothecary does it, according to the Pharmacopœia, he must be paid for it a good price.

Mr. Nichols.—If the increase in price [of alcohol] was not so exorbitant, we should not have reason to complain; but the increase is not in proportion to other things; the increase is greater. We used to buy a pint of alcohol for four and a half cents; now we pay sixty cents. This margin is very great; so great that it bears very heavily on the poor. We ought to look at that. There are two views to take: the patriotic and the benevolent. Many depend on the druggist for their medicines, which are a serious expense to them. If means could be devised to reduce the cost of alcohol, it would yield as much revenue to the Government as it does to-day. This heavy tax seems to me to be striking a heavy blow at the industry of the country. We have lost, and are now losing entirely, the manufacture and sale of those articles into which alcohol enters. There are none shipped to the Provinces, none to Melbourne. These sources of revenue have all dried up, owing to this increase in the price of alcohol. I am inclined to think there should be some action taken in relation to the price of alcohol. The loss in manufacturing is great, and the druggist does not get back its cost. He cannot charge for tinctures in proportion to its cost. In relation to Dr. Squibb's views, it seems to me that the argument relative to increased wages must be received with some reservation; as this greater amount is consumed in the price of necessities of living, but little is saved. I have talked with Congressmen on this point. They are willing to act on any feasible remedy.

Dr. Pile thought that a more important point was in relation to the license. We are required to take out a license for selling alcoholic liquors, legitimately used as medicines. We are obliged to take out, in addition, a tavern-keeper's license to sell brandy, wine, and whisky, as medicines. I think this a serious mistake made by the assessors. It was declared in Philadelphia that every druggist must take out a tavern-keeper's license. A physician orders three or four ounces of brandy: some assessors declare that we cannot sell unmixed liquors, by prescription, without a license. Then, again, some determine that all articles we make, make us manufacturers, and we must take out a manufacturer's license, in addition to the others; and, if the amount we manufacture for our sales is over $600, we must pay 6 per cent. additional duty or tax.

Dr. Squibb believed this trouble to arise from the difficulty of discrimination on the part of Congress in legislating for a class of dealers who have among them many who do not hesitate to be dishonest, in this matter of selling liquors as a beverage. As regards irregularity in the action of assessors, this is a matter to be reformed, and may be done by proper representations to the proper authority. To tax apothecaries as liquor dealers is right when they sell it indiscriminately, to increase their profits, as many will do. Not to have a license would be to open another loop-

hole to illegitimate traffic. Whisky is only a few cents a gallon more than the tax. It cannot be made for less than sixty cents per gallon. Many think it is illicit distillation that keeps whisky down in price. This is probably true of all districts. Don't let us obstruct the progress of the machinery which government has been compelled to put in action for the protection of the revenue. Let us be patient under the burden, and when we determine the real character and source of our grievances, represent them to Congress in an unassuming way, and they will be examined and redressed.

Prof. Procter.—I think we should be willing to let Congress do its best in such a way as it sees fit, but I do not see why we should let our grievances pass unnoticed. In the last Pharmacopœia certain liquors were made officinal, and we are therefore bound to keep them. We cannot sell unmixed brandy, wine, or whisky, without having a license. The physicians order these liquors, and we must break the law or take out a license. If we take out a license, it is natural to suppose that we should want to do enough business to pay for that license. We increase the quantity sold; this puts temptation in the way of our clerks and apprentices. Hence some apothecaries have come to be mere liquor dealers; they take out only a liquor dealer's license, because that covers everything. We must either say "we cannot put up your prescriptions," or, getting a license, we must open dram shops,—for it will gradually happen that liquors will be dealt out otherwise than as medicines, if sold by license.

Prof. Parrish regretted this discussion has involved so many points. It is a very extensive subject. He was in favor of taxing the apothecaries who sell liquors otherwise than by physicians' prescriptions, and he did not think sales of liquors by prescription were now taxable. The apothecary is bound to see that the prescription is legitimate, and not false; he believed the law would uphold us in this course. He was opposed to apothecaries selling liquors, and was conscientious about it; refused all but by prescription; sends such customers away unsatisfied. He thought the stamp acted as a premium to quackery, when it was meant to operate against it. The quack pays only four per cent.; the manufacturer of fluid extracts, etc., for legitimate use, six per cent. We should interfere, and prevent this unequal taxation. Dr. Squibb says that wages are very high. How is it with the poor women whose husbands have died by the war,—many of them with families? Go and see where they live, and how they get a living; find how intemperance and vice are crushing them down, and how they die for want of proper medical care. It is upon these people,—the real and wretched poor,—that the law is a burden, and its action oppressive.

Then as regards the use of alcohol as fuel. The tax has stopped this, and cut off a vast revenue if the price could be kept so as to yet use it for burning. Mr. Parrish suggested the English plan of giving bond for its legitimate use, and thus lift the duty,—the distiller selling under the direction of an excise officer.

Dr. Squibb still believed it as impossible to discriminate in favor of the poor; the government would gladly do it, if possible. It is impossible to discriminate in favor of pharmaceutists, because as a class they are no more honest than other people. They are no more to be trusted than other people. This is the real difficulty. Procter's point in regard to taking out licenses as liquor dealers, and the stimulus this offers to every apothecary, is very good indeed; it can only be answered in this way: It is one of the abuses that Congress did not provide for, and can be remedied by legislation, on proper representation. Meanwhile let us wait till the proper time arrives. As regards the inequality of taxation in the stamp and manufacturer's duties, this also could be changed. In regard to the bearing of these heavy taxes upon the poor, and to the necessity of our coming to their relief, it is well known that they are very largely the consumers of quack medicines, and to have them will pay any price; whilst they refuse a fair price for good laudanum. He thought the taxes on these quack medicines should be increased, to protect regular pharmacy, and to check the harm done by their indiscriminate use.

The discussion was continued by Mr. Nichols and Mr. Colcord. Prof. Graham had been much interested, but thought the discussion had been continued as long as it was profitable.

Mr. Close moved that the whole subject be referred to a committee.

Dr. Squibb wanted the duties of such committee, if decided on, to be clearly defined. He was about to suggest the postponement of the subject till next year, the members meanwhile considering it carefully, and then come prepared to act. Why not all be a committee?

Prof. Procter favored the appointment of a committee to bring the subject before the Committee on Ways and Means. He believed a committee could facilitate the objects in view,—viz.: the reduction of the tax on alcohol for pharmaceutical and chemical purposes, and the avoidance of a license for selling liquors by physicians' prescriptions, for medical purposes. A committee could be authorized to address the proper authorities, have consultations with them, and thus avoid the delay of a year.

Dr. Squibb thought a committee could investigate the subject, and be prepared to give information to the Committee of Ways and Means, if invited to do so, but doubted the propriety of intruding our views upon that Committee, who were tenacious of their opinions and methods of action.

Mr. Barr suggested that every one write his views, and present them at the next meeting.

Mr. Colcord thought a committee of five would give a report of its Chairman only; still he should like a committee appointed, and each member of it to report.

Mr. Taylor also suggested that each member should report separately.

After further suggestions by Dr. Squibb, Mr. Taylor, and others, it was

"*Resolved*, That a committee of five be appointed to take into consideration the whole subject of the Internal Revenue Law in its relations to the

objects of the American Pharmaceutical Association, with special reference to the alcohol question, with authority to confer with the Committee of Ways and Means of Congress, and the Commissioner of Internal Revenue; and who shall report to the Association at its next meeting."

The resolution was adopted, and the President authorized to appoint the Committee at his leisure, and notify the members of his action.

Mr. Tufts moved the appointment of a committee to report rules of order for the meetings, which was not agreed to.

The Committee on Specimens presented some additions to their former report, which were accepted.

On motion of Prof. Parrish, it was

*Resolved*, That the thanks of the Association are due and are hereby tendered to the corps of Reporters who have so faithfully attended our several sittings.

There being no further business before the Association, the minutes of the several sessions were read, corrected, and adopted, when, on motion, the Association adjourned, to meet at Detroit, Michigan, on the fourth Wednesday of August, 1866, at 8 o'clock, P. M.

J. M. MAISCH,
*Recording Secretary.*

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## ON TINCTURA FERRI CHLORIDI, U. S. P.

By J. C. Wharton, of Nashville, Tenn.

Among the changes made in the last (12th) edition of the U. S. Dispensatory, that of "Tinctura Ferri Chloridi" is one of the most important. As those accustomed to read and practice the formulæ of this work are aware, the present manner of preparing this tincture was mentioned in a "note to the eleventh edition" of the U. S. D.

Though possessing peculiar merits, there has been some difficulty experienced in the manufacture of a uniform article. This consists chiefly in the rapid precipitation of a considerable portion of sesquioxide of iron, and in the dark greenish, instead of its bright golden color.

Referring to the cause of these defects, it will be seen, that the former arises from the faults of manipulation, and the latter from insufficient oxidation of the metal, as a little reflection upon

the U. S. P. formula, here given will show. The recipe is as follows:—

"Take of Iron in the form of wire and cut in pieces *three troyounces;* Muriatic Acid *seventeen and a half troyounces;* Alcohol three pints; Nitric Acid, Distilled Water, each, a sufficient quantity. Introduce the Iron into a flask of the capacity of two pints, pour upon it *eleven troyounces* of the Muriatic Acid and allow the mixture to stand until effervescence has ceased. Then heat it to the boiling point, decant the liquid from the undissolved Iron, filter it through paper and, having rinsed the flask with a little boiling distilled water, add this to it through the filter. Pour the filtered liquor into a capsule of the capacity of four pints, add the remainder of the Muriatic Acid, and, having heated the mixture nearly to the boiling point, add a *troyounce and a half* of Nitric Acid. When effervescence has ceased drop in Nitric Acid, constantly stirring, until it no longer produces effervescence. Lastly, when the liquid is cold, add sufficient distilled water to make it measure a pint and mix it with the Alcohol."

It will be observed, that the Muriatic Acid is here divided into two portions, the second of which is added to the solution of the Protochloride of Iron formed by the first. This is done in *anticipation* of the precipitate of Sesquioxide of Iron, which would otherwise result, when the Nitric Acid is added. Here is evidently the *source of the first defect* above alluded to; for when the mixture is heated "*nearly to the boiling point*" and the Nitric Acid is added until effervescence is no longer produced (as directed) a loss of Muriatic Acid will almost inevitably occur, from the heat and the effervescence. Consequently a precipitate must be thrown down, from insufficiency of acid. To remedy the evil, the Muriatic Acid should not be added until near the close of the operation after the chemical change, of the *proto*-chloride to that of sesqui-chloride and sesquioxide of Iron, has been produced by the Nitric Acid, and the mixture has nearly cooled. The sesquioxide will then be readily dissolved, forming a complete solution of Sesquichloride of Iron.

There are advantages attending this method, beyond that of securing a reliable tincture, namely: the more rapid oxidation of the Iron by the Nitric Acid, and the requirement of smaller

vessels than in the former method, both of which are the consequences of employing the solution of Protochloride in an undiluted state. The formula, here given, is a modification of the one above and has yielded, in the experience of the writer, very satisfactory results, and constant success has attended it:—

| | |
|---|---|
| Take of Iron wire in small pieces, | ℥iij. |
| Muriatic Acid, | ℥xviiss. |
| Alcohol, | Oiij. |
| Nitric Acid, | |
| Distilled Water, *aa* | Q. S. |

Introduce the iron into a flask of the capacity of two pints, and pour upon it *eleven troyounces* of the Muriatic Acid and allow the mixture to stand until effervescence has ceased. Then boil until the odor of *Sulphuretted Hydrogen* cannot be detected in its vapor, decant the liquor from the undissolved Iron, filter it through paper, and having rinsed the flask with a little boiling water, add this through the filter to the rest of the liquor. Pour this into a capsule of the capacity of two or two and a half pints and heat to the boiling point, add by degrees Nitric Acid until it no longer produces effervescence by fresh additions or until the liquor has changed to a *yellowish brown color*. Let it nearly cool and add the remainder of the Muriatic Acid, stirring frequently, until the precipitate of Sesquioxide of Iron is dissolved; add sufficient distilled water to make it measure a pint and mix with the Alcohol. It will yet generally have a greenish color. This arises from insufficient oxidation of the Iron, as before remarked, and may be remedied by exposing it in open, wide-mouthed vessels, for a few days, to the action of the air and light. It is remarkable that during this exposure, when *etherification takes place*, a singular precipitate is produced, which when washed with diluted Muriatic Acid and water, proves to be a light, bulky, white substance much resembling Sulphate of Quinia in appearance. It is tasteless, slightly soluble in water and diluted acids. It may be heated to redness without change and seems to be an organic compound of Protoxide of Iron; of which a specimen has been furnished to Professor R. E. Rogers, of the University of Pennsylvania.

*Sept. 27th*, 1865.

## ON A PROCESS OF FRACTIONAL CONDENSATION: APPLICABLE TO THE SEPARATION OF BODIES HAVING SMALL DIFFERENCES BETWEEN THEIR BOILING POINTS.

By C. M. Warren.*

It is well known that the process in general use for the proximate analysis of mixtures of volatile liquids,—viz.: that of simple fractional distillation, either from a tubulated retort or from a flask with bulbs, as proposed by Wurtz,†—affords but very imperfect and unsatisfactory results, and not unfrequently leads to gross errors and misconceptions, except in those cases in which the boiling-points of the constituents are widely different, or in which some auxiliary method can be advantageously employed.

The want of a more efficient process for effecting such separations has long been recognized. There are numerous natural and artificial products, of the highest scientific interest,—such as petroleums, essential oils, tars, and other mixtures of oils obtained by the distillation, under varied circumstances, of bituminous, vegetable, and animal substances,—of which it may at least be said that we have but very imperfect knowledge,—I might almost say no knowledge, except such as could be derived from the study of very impure materials,—still mixtures of different bodies,—with which, instead of the pure substances sought for, chemists have felt compelled to content themselves, as the best results which they were able to obtain by the means at their command.

In repeated instances, apparently after persevering and protracted efforts, investigators have been forced to assert either the impossibility, or their inability, to obtain, from such mixtures, bodies of constant boiling-point,—a property which is generally received as a test of purity for liquid bodies.

I may here specify a few recent instances of this kind.

1. Warren de la Rue and Hugo Müller, in their paper‡ entitled "Chemical Examination of Burmese Naphtha and Rangoon

*From the Journal of the Acad. Arts and Sciences, Boston, May 10, 1864.

† Annales de Chimie et de Physique, [3], xlii. 132.

‡ Proceedings of the Royal Society, viii. 221.

Tar," after detailing the preliminary treatment by distillation in a current of steam, add that "A further separation of the various products was effected by repeated fractional distillations; but no absolutely constant boiling-points could be obtained, notwithstanding the great number of distillations and the large quantity of material at command. It is true that considerable portions of distillates could be collected between certain ranges of temperature, tending to indicate a constant boiling-point; nevertheless, it soon became evident that distillations alone could not effect the separations of the various constituents, and that recourse must be had to other processes." The other processes resorted to were, treatment with sulphuric and nitric acids, either separately or mixed; but still with very imperfect results. This acid treatment, which was first proposed by De la Rue, and subsequently employed by C. Greville Williams,* Schorlemner, and others, will be further noticed below.

2. Frankland,† in speaking of a mixture of the hydrocarbons of the formulæ $C_n H_n$ and $C_n H_{n+1}$ (now generally considered as $C_n H_{n+2}$), which have a difference of 6° to 7° C. between their boiling-points, says, "The separation of two such bodies by distillation alone is impossible;" and suggests that the employment of anhydrous sulphuric acid may accomplish the object by dissolving out the body of the formula $C_n H_n$.

3. And so recently as 1862, Schorlemner,‡ in his first paper "On the Hydrids of the Alcohol-Radicals existing in the Products of the Destructive Distillation of Cannel Coal," remarks that "it was, however, found impossible to obtain a product of constant boiling-point by repeated fractional distillations;" and he also had recourse to the acid-treatment above referred to.

4. Pebal,§ after an elaborate research on the petroleum from Galicia, in which Wurtz's bulbs were employed, and also Eisens-

* Philosophical Transactions, 1857, 447.

† Quarterly Journal of the Chemical Society, 1851, 3, 43.

‡ Journal of the Chemical Society, xv. 419.

§ Annalen der Chemie und Pharmacie, cxv. 20, asserts the "Unmöglichkeit, das Gemeage durch fractionirte Destillationen zu entwirren."

tuck,* who made an extended investigation of the petroleum from Sehnde, near Hanover, also with the use of Wurtz's bulbs, both assert in the most positive manner the impossibility of separating from petroleum, by fractional distillation, products of constant boiling-point.

Such is the general character of the results obtained in the attempts which have been made to separate the constituents of such mixtures by fractional distillation.

The treatment with strong acids, etc., as an auxiliary to the common method of fractional distillation, which is claimed to have given good results in some cases, is open to serious objections in its application to mixtures of unknown substances, as must be readily apparent. The further consideration of this subject is reserved for another occasion, when I shall submit the results which I have obtained by my process in the study of mixtures almost identical with some of those in the investigation of which the acid process has been employed. I shall then be able to show that the results obtained by that process are, to a considerable extent, inaccurate and by no means exhaustive; and that it is still of the highest importance to have a process which shall be generally applicable in all such cases, without resort to any harsh or uncertain treatment.

With regard to the value of constancy of boiling-point above referred to, as a test of purity of a liquid substance, I may here say that, without scarcely lessening the importance of obtaining constancy of boiling-point, before resorting to harsher treatment, in the study of mixtures of unknown substances, I think I shall be able to show, on another occasion, that this property is not necessarily indicative of so high a degree of purity as has generally been supposed; and that a body may have a constant boiling-point, and yet contain enough of a foreign substance to

* Annalen der Chemie und Pharmacie, cxiii. 169, says as follows: "Mit den 5° zu 5° aufgesammelten Destillaten wurde die fractionirte Destillation weider von Neuem vorgenommen, aber nachdem diese Operation sieben Wochen mit etwas 50 Pfund Steinöl fortgesetzt worden war, erhielt ich doch kein Product von irgend constantem Siedepunkt. Nach diesen Versuchen halte ich es für Unmöglich, das Steinöl durch fractionirte Destillationen allein in Producte mit constantem Siedepunkt, zu scheiden."

appreciably—and, in delicate cases, seriously—affect the determination of its constitution and of some of its other properties. But in no such case have I yet found that the removal of the impurity by chemical means has essentially changed the boiling-point,—i. e., never to the extent of 1° C. of temperature. I propose, at a future time, to study this question synthetically, operating with pure liquid substances, with the view to determine, in a few cases, how much of a foreign substance may be present,—which would probably be variable in different cases,—without sensibly affecting the boiling-point. A solution of this question would, I think, be of considerable practical value in some instances.*

*Of the new process.*—The chief distinctive feature of my process, as compared with the common one, consists in this,—that the operator has complete and easy control of the temperature of the vapors given off in distillation; and consequently can readily cool these vapors to the lowest limit of temperature which the most volatile portion, under the circumstances, is able to bear and retain its vaporous condition. It will be seen at a glance that, under these conditions, the operator has it in his power to secure in any case the very largest possible amount of condensation of the heavier from the lighter vapors. The liquids resulting from the condensation of the less volatile portions of course fall back into the retort, while the vapors of the more volatile parts continue to go forward to a cold condenser, descending in the opposite direction, from which the condensed product falls into a special receiver. In this manner he is able to obtain, in each successive operation, a series of products which shall contain the minimum quantity of the less volatile constituents, which a single distillation is capable of affording.

Of the common process, on the contrary, nearly the reverse of all this is true: the operator having no control whatever; being forced to receive the vapors at the temperature which they naturally acquire in passing from the retort, and laden with

* Since this was prepared for the press I notice that late experiments by Berthelot go to show the correctness of my conception of the value of constancy of boiling-point, as above stated.

such proportion of the less volatile bodies as may be carried forward with them.*

In the new process, perfect control of the temperature of the vapors is secured by simply conducting these vapors upward through a worm contained in a bath, *aa*, figs. 1 and 2, the tem-

* The only apparatus of which I have any knowledge, which can be regarded as bearing any analogy to my own, is that employed in the rectification of alcoholic spirits, on a manufacturing scale. In one of the older forms of this apparatus, that of Solimani, to which my attention was first called by a friend, after my process had been in use more than a twelvemonth, the temperature of a dephlegmator is kept within such limits as to give alcohol of any required strength more readily than by the common methods. The mode of construction of this apparatus is, however, only adapted to manufacturing purposes, and it could not be utilized in the more exact experiments required in scientific research. Either on account of its complication, or some other cause, the apparatus of Solimani has, I believe, long since been abandoned.

Mansfield (*Quarterly Journal of the Chemical Society*, 1849, i. 264), observing that "the boiling-point of benzole is the same as that of alcohol of sp. gr. 0·825," remarks that "any of the summary processes of rectification which are practised by distillers in the manufacture of alcoholic spirits, are applicable to the separation of benzole from the less volatile fluids of naphtha;" and, appended to his scientific treatise on coal-tar, under the title "*Of a Practical Mode of preparing Benzole*," goes on to describe a process for that purpose, which, I believe, he had previously patented. It appears that Mansfield did not employ this process in his research, but obtained his benzole, as well as the other less volatile hydrocarbons, in the usual manner,—by simple distillation.

In the belief that no process of fractioning at all analogous to mine has ever been employed in scientific research, and that I am not in any way directly indebted to any of the devices of my predecessors, I have taken no special pains to consider these devices in much detail. I may say, however, that I have found no record of any one's ever having employed the oil bath and a separate fire to regulate a heated condenser, this being the essential feature on which the superiority of my process is based; adapting it at once to both high and low temperatures, and for the most delicate work.

The employment of bulbs, above referred to, as proposed by Wurtz, is simply a modification of the old process. The bulb apparatus furnishes the same, or, at most, but slightly better results than a simple retort; being no more than equivalent to increasing the height of the sides of the retort itself, without introducing any control over the accuracy of the results; the only advantage gained being, that these results are obtained somewhat more quickly.

perature of which is regulated by means of a separate lamp, *b*, fig. 2, or by a safety-furnace, *p*, as shown in fig. 1. The bath may be of oil or water, or of metal for very high temperatures, as the case may require, and is furnished with a thermometer, *t*.

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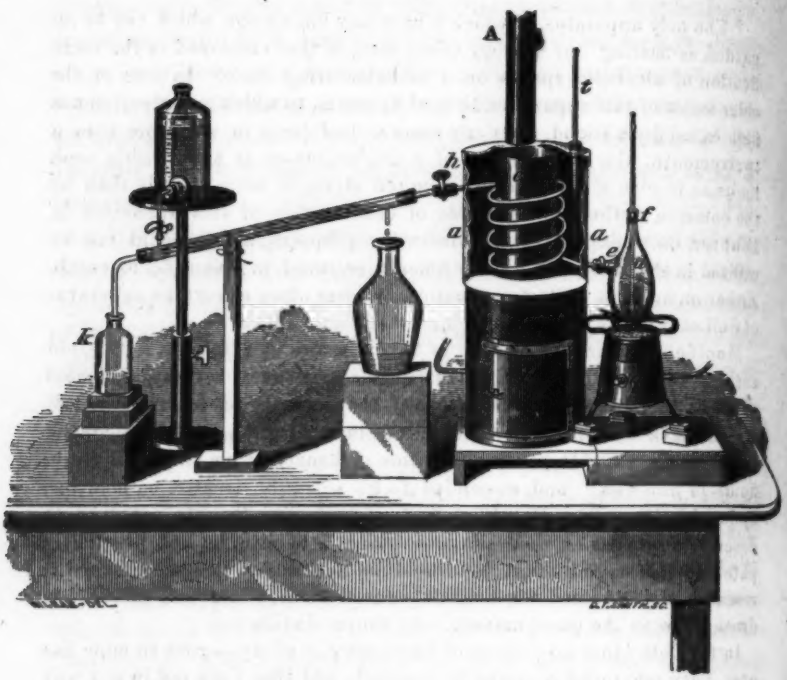
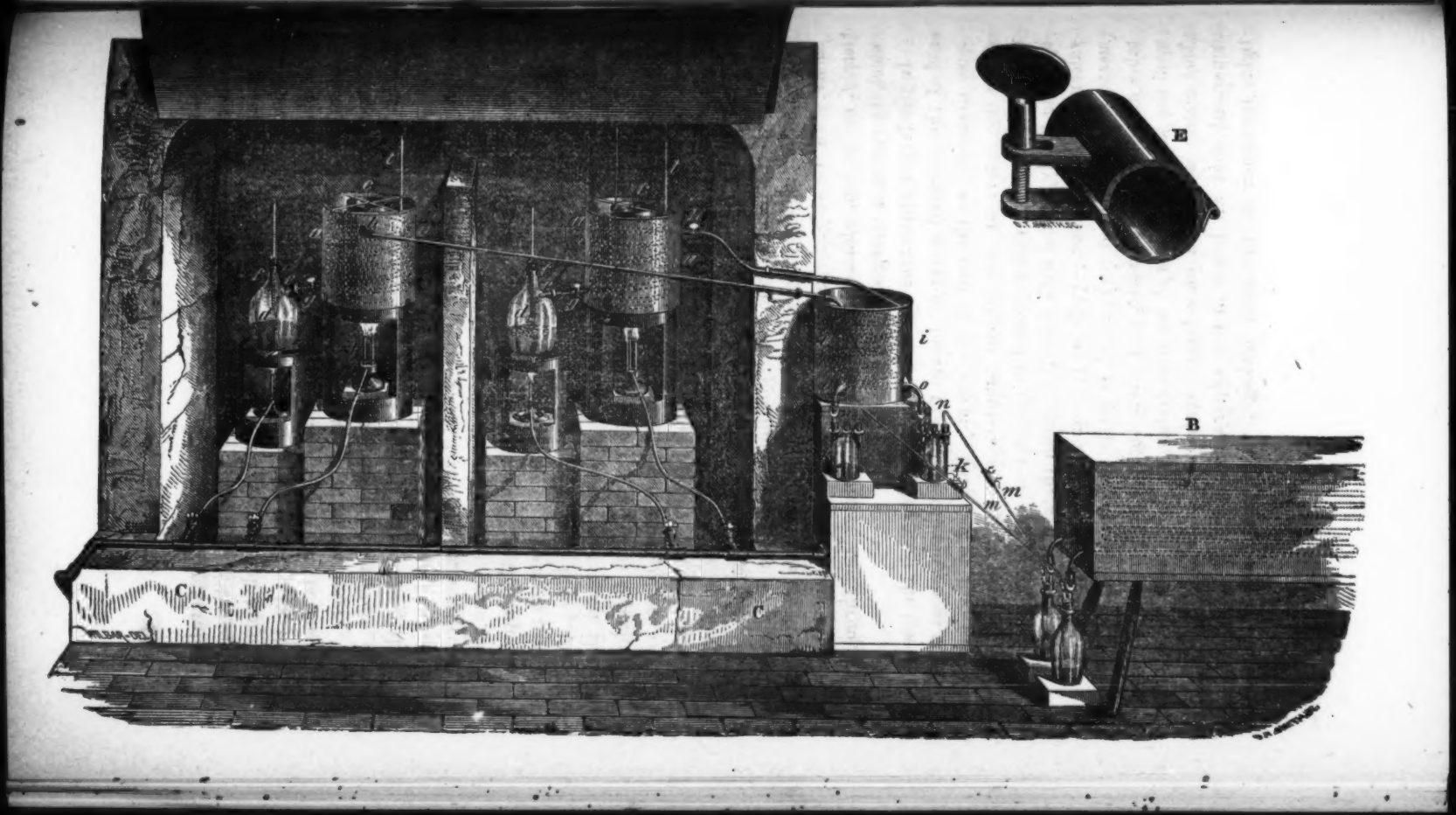



That this bath may be equally adapted for the separation of liquids boiling below the common temperature, an empty vessel, *e*, figs. 1 and 2, is permanently secured in the interior of the bath by means of straps of metal across the top, to serve as a convenient receptacle for ice or iced water, by means of which a low temperature may be steadily maintained. The interior vessel also serves a good purpose in economizing time, and fuel in heating the bath, as it diminishes the quantity of oil required to cover the worm. It is made to extend to within about three inches of the bottom of the bath, and large enough to fill the greater part of the space in the centre of the coil. The bath and interior vessel are both made of sheet-copper, with joints

brazed so that they will bear a high temperature. I generally use, also, copper worms, especially in the earlier distillations, the quantities then operated upon being larger, as such worms are conveniently procured, and not liable to break. In the larger-sized apparatus, the tube of which the worm is made measures ten feet in length and half an inch in diameter. I have tried several lengths of worm and several diameters of tube, but not, as yet, with any special view of determining the precise proportions, in relation to the size of the retort, which would be best adapted to the purpose. There appears, however, to be nothing gained by increasing the length of the worm beyond what is required to reduce the temperature of the vapors to that of the bath. I have in use three sizes of apparatus: the largest has a copper worm 10 feet long and $\frac{1}{2}$ inch bore; the medium size, a worm 5 feet long and $\frac{3}{8}$ inch bore; and the smallest size, for very small quantities, a worm 1 foot 6 inches long and $\frac{1}{4}$ inch bore. Each of these has been found to answer a good purpose. The distillation may be conducted in a glass flask, or more conveniently in a glass retort of the form shown at *d*, figs. 1 and 2. The body of this retort, as appears in the figure, is of the form of the corresponding part of the common retort; but which, in place of a long neck, has only a short tubulure, *e*, in the side, for escape of the vapors, and another tubulure, *f*, in the top, which contains the thermometer, and through which the retort is charged.

In the larger apparatus the retort is connected with the lower end of the elevated worm by means of a glass tube of about the same diameter as the end of the worm. One end of this tube enters the retort at the lateral tubulure through a perforated cork, and the other end is joined to the end of the worm, either by being firmly bound with a strip of cloth thickly covered with vulcanized caoutchouc,—such as is found in commerce,—or by means of a perforated cork, which is made to fit the ends of both tubes as snugly as possible, and then tightly pressed togethe upon the joint by means of an iron clamp, as shown at *g*, fig. 2. This clamp is figured on a larger scale at E. As it is highly important that all joints in the apparatus should be perfectly tight, inasmuch as the least leakage, when continued a long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k
m

time, would cause, in the aggregate, a serious loss of material, I would call special attention to the clamp joint as the best which I have tried. Before falling upon this device I had used exclusively the vulcanized caoutchouc joints, which were found to answer a good purpose, in most cases, except that they required too frequent renewal. I have found the cloth covered with vulcanized caoutchouc preferable to the common caoutchouc tubing. In the smaller sizes of apparatus I have the end of the worm itself project far enough from the bath to connect directly with the retort by means of a perforated cork, without the use of an additional connecting tube.

The upper end, *h*, of the elevated worm is brought out through the side of the bath at a point about three inches below the top; so that, when working with a low temperature of the bath, the worm may still be completely covered with oil, and also give sufficient space above the worm for the expansion of the oil when higher temperatures are employed. To avoid contaminating the atmosphere of the laboratory with the disagreeable fumes which are given off, in large quantity, from such a mass of heated oil, the top of the bath is tightly closed with a sheet-iron cover, from which a small funnel, A, fig. 1, conducts these fumes to a chimney.

In the larger apparatus, the vapors which succeed in passing through the heated worm are conducted downward into a cooled worm contained in a bath of water, *ii*, fig. 2, and the liquid product is collected in the receiver, *k*. The cold bath, *ii*, contains two condensing worms,—one for each apparatus,—and is large enough to condense for both without the necessity of renewing the water. I have represented two apparatuses combined, as it will be found more economical of time to operate with two at once. In the smaller apparatus, for the table, a Liebig condenser may be conveniently substituted for the cold worm, as shown in fig. 1.

For collecting liquids which boil below the common temperature, when such are present, I attach a refrigerator, B, fig. 2, which is provided with two block-tin condensing-tubes,—one for each apparatus. These are bent in a zigzag form, and attached to the inner sides of the refrigerator. The lower ends of the

tubes extend through the end of the refrigerator far enough to form a convenient connection with the second receiver, *l*, fig. 2, which communicates with the first receiver, *k*, by means of the glass tube, *m*.

In order to successfully collect and condense the vapors of such extremely volatile liquids as are now under consideration, it is of course indispensable that the apparatus should be constructed with very tight joints; and for greater convenience, but more especially to prevent breakage, such of the joints as require to be frequently taken apart should be made flexible. A very convenient and perfectly tight joint of this kind may be made as follows:—the short stationary tube, *n*, in the cork of the receiver, *k*, fig. 2, is made with the opening somewhat divergent upward; the end, *o*, of the worm is enough smaller than the inside diameter of the upper end of the tube, *n*, to leave room for a piece of caoutchouc tube to be drawn over it, and still admit of its being inserted in the end of the tube, *n*; the flexible tube is drawn on far enough to prevent the drops which form on the end of the worm from coming in contact with the caoutchouc; a perfectly tight and convenient flexible joint is now made by pressing the tube, *n*, over the caoutchouc covering of the end of the worm, *o*. The joints of the receivers, *ll*, are made in the same manner.

The vapors which escape condensation in *ii* pass through the receivers, *kk* and *ll*, to the refrigerator, B, which contains ice, or a mixture of ice and salt, are there condensed and fall back into the receivers, *ll*; which should stand in a wooden vessel also containing ice or a freezing mixture. The refrigerator, B, is made with double bottom and sides, with an inch space between, which is filled with pulverized charcoal. Being tightly covered, a charge of ice and salt will serve for a long day's operations without renewal. In this manner I have been able to collect, in considerable quantity, bodies boiled nearly at 0° C., and this from mixtures in which such bodies had been quite overlooked by previous investigators.

It will be observed in reference to fig. 2, that the larger distilling apparatus is represented as standing in a brick fire-place, with brick-work CC, a few inches high, built up in front; and

a sheet-iron apron, DD, folded above. This is for security against fire in case of accident, either to the retort or hot bath of oil. As arranged, the contents of either or both of these could run out and burn without danger to the operator or the premises, as the brick-work in front would prevent the liquid from spreading beyond the fire-place, and the dropping of the sheet-iron apron would cause an additional draft, and thus insure the passage of the flames into the chimney. Instead of placing the apparatus in a fire-place, where that is not convenient, equal security against accidents may be attained by the use of my safety heating lamp,* *q*, fig. 1, to heat the retort, and safety-furnace, *p*, containing a Bensen's burner, for heating the bath. The bottom of this furnace, and also a large part of the sides, is formed of wire gauze, such as described for the safety-lamp.† The gauze upon the battom need not be permanently attached to the furnace, but may simply be laid upon an opening cut in the stool or board on which the furnace is to be placed; if the furnace be then set upon it, taking care that the joint shall be tight around the edge, nothing more will be required. A strip of vulcanized caoutchouc, about an eighth of an inch in thickness, is riveted around the edge of the opening for the door; against this the door tightly closes, so that no ignition can take place through the cracks which would otherwise remain under the edges of the door.

For an apparatus to stand upon the table, the safety-lamp and furnace are especially desirable. I have also used them for the larger apparatus, placed upon the floor of the laboratory. As a practical test of the security which they afford, I may relate an incident which happened to myself. I had left the laboratory for a short time, with such an apparatus in full operation; the retort containing nearly a quart of light petroleum boiling below 100° C. Having been detained longer than I expected, on returning I found the laboratory filled with the vapors of hydrocarbons; and, on approaching the retort, found that the caoutchouc joint, connecting the retort with the elevated worm, had failed, and that the larger portion of the liquid had distilled into

* American Journal of Science and Arts, May, 1862 [2,] xxxiii, 275.

† Loc. cit. See Amer. Jour. Pharm. xxxiv. 217.

the room, having been mainly condensed in the upper worm, and conducted thence down the outside of the retort into the safety-lamp. This process was still going on, the lamp being highly-heated from the excess of fuel thus added to it, but no ignition took place outside the lamp. Although this experiment was rather injudicious, it furnishes a valuable test of the efficiency of the safety-lamp and furnace.

Having described the apparatus, I now proceed to give such details of the method ot conducting the separations as have been found, in my experience, most efficient and economical of time. In commencing with a crude mixture of unknown liquids, I deem it advisable to operate at once on a tolerable large quantity of material, especially if the constituents are supposed to be numerous, and to omit chemical treatment till after the separations have so far progressed as to indicate the number and species of bodies present, and, approximately, their several boiling-points.

Notwithstanding the precautions taken to avoid loss from evaporation and leakage, I have at times been surprised at the large waste of material which has been made apparent after a long series of operations. When it is considered, however, that the time required to make a complete separation of a very complex mixture of liquids must necessarily be very protracted, during which more or less of evaporation is constantly taking place, it will be a matter of no surprise that the loss is so considerable. The quantity of material required must depend also on the proportions in which the various constituents are contained in the crude mixture, and upon their degree of volatility; but as these cannot be known *a priori*, it may suffice to make a single preliminary distillation of a portion of the mixture, from a tubulated retort, to ascertain the range of temperature within which it distills, noting at the same time the proportions which come over between certain temperatures; as, for example, below 50° C.; between 50° and 100°, etc.; from these data one may judge pretty nearly of the quantity which it will be advisable to take. It is evident that, when very volatile bodies are present, even in considerable proportion, a much larger quantity would be required than if the material were but slightly volatile a the

waste in the former case, from evaporation, would be much greater.

But in many cases it will be found that highly volatile bodies are present only in very small proportion,—e. g., in viscid petroleum like Rangoon tar, and in the products of distillation of some species of asphalt. In such, cases, the requisite quantity to be operated upon, to obtain the most volatile constituents in sufficient quantity for anything like a complete study of their chemical relations, would be extremely large,—too large to be conducted in the laboratory,—and one would have to resort to the manufactory for the first distillation. I have dwelt at some length on this point, having experienced the disappointment which one feels, after months of labor, on finding the products insufficient for his requirements. when the expenditure of a little more time, comparatively, might have given double the quantities obtained.

In the first series of fractioning, I generally operate on successive portions, of about one gallon each, of the crude material, and take off a fraction for every 20° C. rise of temperature of the retort. These fractions are preserved in well-stoppered bottles, and each carefully labelled with the temperatures between which it was obtained. The fractions for each fresh portion of the crude material, being collected between the same limits of temperature, are added to the corresponding products from the preceding operations, till enough of the crude material has been taken to insure, ultimately, a sufficiency of the pure products.

In the commencement, not only of this but of all subsequent fractionings, when the temperature to which the bath should be raised is unknown, I first bring the liquid in the retort into full ebullition, so that a steady stream of liquid shall flow back from the end of the worm into the retort. I then carefully raise the temperature of the bath until the vapors from the retort pass through the heated worm so freely that the liquid, in condensing from them, shall drop with tolerable rapidity into the cold receiver. In order that this dropping may be continuous, it is necessary that the temperature of the bath should rise *very gradually* as the more volatile constituents of the mixture are taken off; this is easily effected by carefully regulating the flame under the bath.

It is advisable to boil the retort as rapidly as possible without choking the lower end of the heated worm with the returning liquid. As this choking would give rise to additional pressure in the retort, and consequently occasion abnormal elevation of the temperature, and possibly a rush of liquid into the receiver, and thus introduce irregularities in the work, excessive heat under the retort should be avoided. The first indication of choking of the worm is a partial or entire stoppage of the stream of liquid which normally flows steadily from the end of the worm into the retort. Any interruption or unsteadiness of this flow would indicate too rapid ebullition.

As a rule, other things being equal, the greater the difference between the temperature of the bath and that of the retort, the slower the products will come off, and the more effectual will be the separation. I think it possible, however, that the earlier fractionings may be conducted so slowly that the loss of time would more than counterbalance what might be gained by more thorough separation, and that equally good results may be more economically obtained by more frequent operations, somewhat more rapidly conducted.

A striking illustration of the advantage to be gained by this process is presented by the fact that, during the first fractioning of a crude mixture, such as American petroleum or coal-tar naphtha, for example, the difference between the temperature of the bath and that of the retort may sometimes be as much as 35° C., or even more. While, as the products become purer, this difference between the temperatures of the bath and retort proportionally decreases, till finally, in operating on a pure product, the temperature of the bath must be brought to within a few degrees of that of the retort, in order to bring the vapors through. But the amount of this difference is variable for different bodies of equal purity.

The first fractionings must necessarily be quite arbitrary; for, as a general rule, when operating on such mixtures as those just mentioned, neither the thermometer nor the quantities obtained for any given range of temperature will indicate any decided preponderance of any one substance. On the contrary, the temperature rises uniformly, and about the same quantity is

generally obtained for the same number of degrees of temperature throughout the operation. In other mixtures, in which certain bodies may seem to be present in much larger proportion than others, or in which there may be a greater difference between the boiling-points of the constituents than in the cases referred to,—facts which would be indicated by the thermometer of the retort, and by the relative quantities of the products obtained,—there might be something gained by exercising discretion in taking off fractions according to these indications.

In the second series of fractioning, the first or lowest fraction of the preceding series, which is large enough to operate upon by itself, is transferred to the retort, and brought into ebullition. The temperature of the bath is then adjusted as above described, and the distillation continued, the fractions obtained being placed in their appropriate bottles until the temperature of the retort shall have risen to, or somewhat above, the point at which the second or next succeeding fraction of the first series may be supposed, or has been found by experiment, to boil. This fraction is then added to the residue in the retort, and the distillation is continued as before. In the same manner, I proceed with the remaining fractions of the first series.

All subsequent fractions are similarly conducted. As the work progresses, however, the fractions are taken for a gradually decreasing number of degrees of temperature, until finally it becomes necessary, for the attainment of absolute constancy of boiling-point, to take off a fraction of every degree, centigrade; and to continue thus to operate on these fractions, each representing one degree of temperature, until the desired end is attained.

The operator will observe that, in each series of fractions, in which each fraction has been taken for the same range of temperature, the difference between the boiling-points of any two contiguous fractions is nearly the same as the difference between any other two contiguous fractions,—in other words, that the difference referred to approximates to a common difference throughout the same series. Once ascertained, this difference serves as a valuable guide in determining with sufficient ac-

curacy when to add the next fraction to the retort. By observing this systematic course, irregularities, from the improper mixture of products, may be avoided, and time thus economized.

After a few series of fractionings,—sometimes after two or three, variable in number, according to the nature or complication of the mixture,—it will be found that some of the fractions are considerably larger than others for the same range of temperature, indicating approximately the boiling-points of the several constituents. But fractions of constant boiling-point, or those the boiling-points of which cannot be sensibly changed by further fractional condensation, are not obtained, as already mentioned, till after repeated careful fractioning of every degree of temperature. When fractioning of every degree, it is important to use every precaution to protect the thermometer from external influences, and to carefully apply the corrections for variations in the atmospheric pressure. This may even be desirable earlier; but it is of so much importance in the case specified, that, if omitted, the operator would be liable one day to mix products which he had separated the day previous.

In this way, certain larger fractions are obtained, which are not susceptible of further alteration in their boiling-points; but there are yet considerable quantities of liquid in the intermediate fractions, which still continue to change more or less in each succeeding operation. When the fractions of constant boiling-point have once been obtained, if it were not important to test for other bodies in the intermediate fractions, the operation might here be suspended, provided the pure products already obtained should be large enough for the purposes required.

But, in my investigations, I have undertaken to prove the negative as well as the positive. I have attempted to carry the process of separation so far, that I might assert the absence of other bodies, as well as the presence of those obtained; and this clearing up of the intermediate fractions has generally been the most tedious part of the work. I have continued to operate upon these by themselves, until they almost have become distributed in regular course—no new bodies appearing—among the fractions of constant boiling point, or to such an extent that the intermediate

quantities have become too small to admit of further continuance of the process.

This process has been in constant use in my laboratory during the last three years. In this time it has been applied in the study of petroleums, coal oils, the more volatile parts of coal- and wood-tars, the essential oil of cumin, commercial fusel oil, from corn whiskey, and even to mixtures more complex than either of these. As the result of this long experience, I can say that, as regards bodies not decomposed by heat in distillation, I have not yet found a mixture so complex that it may not be resolved by this process into its proximate constituents so completely, that these shall have almost absolutely constant boiling-points. In repeated instances, even from petroleums, I have obtained these constituents so pure, that the contents of an ordinary tubulated retort charged with one of them has been comparatively distilled off without any essential change of temperature; i. e., not to the amount of $\frac{1}{2}$° C., the thermometer frequently remaining absolutely constant for more than half an hour, a constancy of boiling-point not exceeded by that of distilled water. This state of purity, I think I may safely assert, has never before been attained from such mixtures, by any system of fractional distillation.

As I soon shall be prepared to present to the Academy detailed results of the investigations above referred to, I may omit further allusion to them on this occasion.

I would remark, in conclusion, that it seems to me not improbable that this process may ultimately prove to be of great value in the arts. It is not too much to anticipate that, whenever the various constituents of the mixtures referred to shall have been separately and thoroughly studied in a pure state, some of them may be found to possess properties which will give to them great commercial value, sufficient to justify the expenditure necessary to separate them in large quantities.

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## METALLIC TUNGSTEN.

We learn that a Swedish metallurgist has discovered a method of reducing tungsten, by which he obtains it at once in a state of

fusion, and that ingots of the pure metal, weighing several pounds each, are now on exhibition at Stockholm. We are informed, too, that the cost of obtaining tungsten by the new method does not exceed a few shillings per pound. If really obtainable thus cheaply, a metal which will bear exposure to so intense a heat, without undergoing either fusion or oxidation, must prove of incalculable value to certain of the arts, provided that the difficulties in the way of working it are not insuperable. With the exception of gold and platinum, tungsten is the heaviest metal yet known. Its specific gravity is about 18, that of gold being 19·36, and that of platinum 21·53.—*London Chem. News*, August 25, 1865, from *Mechanics' Magazine*.

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## THEBOLACTIC ACID.

BY MESSRS. T. AND H. SMITH.

As it has been remarked that we have never published the process for obtaining Thebolactic Acid, may we take the liberty of submitting to you the process here embodied, which at the first we printed, circulated, and supplied to the jurors of the International Exhibition of 1862, when the thebolactic acid was first publicly exhibited? We feel called upon to take this step by seeing in the "Dictionary of Chemistry" (by Watts), now publishing Thebolactic Acid (under the head "Opium") classed as one of the doubtful constituents of Opium; and Dr. Thomas Anderson, Professor of Chemistry, made responsible for that doubtful character. In a paper read by Dr. Anderson at the Chemical Society on the 1st May, 1862, and published in the journal of the Chemical Society, thebolactic acid is ranked as one of the "well-determined" constituents of opium; and in a letter we just have from him, he says, "I have never entertained any doubt as to your having extracted from it (opium) an acid which Stenhouse found to have the same composition as lactic acid."

The ready crystallizability of the salt of lime gives the means of obtaining the thebolactic acid from opium.

After all the alkaloids have been thrown down by an alkali from the impure mother-liquids of morphia, the concentrated

liquid is digested with levigated litharge at a heat of about 140° Fahr., with frequent stirring.

The thinned and filtered liquid, having been then concentrated to a thick consistency, is mixed up with a large quantity of S. V. R. From the filtered spirituous liquid the bases are carefully thrown down as sulphates by the addition of sulphuric acid (of which, to do this, a large quantity is necessary). The filtered liquid, after careful neutralization with milk of lime, is distilled to recover the spirit.

On the contents of the still being then brought to a syrupy consistence, and laid aside for a week or so, the syrupy liquid sets into a crystalline mass of thebolactate of lime.

Having obtained the lime salt, it is easily purified by repeated crystallization and the use of charcoal. After bringing the salt to a snowy whiteness, the acid can then, by the addition of the equivalent quantity of sulphuric acid and the use of S. V. R., or other obvious means, be obtained in a separate state.

From the unvarying occurrence of this acid in opium, and its abundance, there cannot be any more doubt of its pre-existence there than of meconic acid, codeia, thebia, or morphia itself. Since its discovery, the general yield from Turkey opium of the thebolactate of lime has been about two per cent.

The circumstance of the quantity of meconic acid obtained from opium being decidedly less than corresponds to the morphia and other organic bases, is a strong argument in itself for the pre-existence of thebolactic acid, and from this conviction arose the search for, and discovery of, this new acid in opium.

Though we have some reason to think Mr. Watts rather loose, our object here is not to complain, but to draw attention to an interesting matter.

Our belief that thebolactic acid exists as a constituent ingredient of opium is founded on the fact that it was separated from at least twenty different consignments of opium of different seasons, and that the yield was uniform, and, as nearly as could be judged, invariable in quantity. Altogether, we prepared about one hundredweight of thebolactate of lime, most of which we purified to a snowy whiteness.

Dr. Anderson, in his present letter to us, says—"I think fur-

ther evidence is required to show that thebolactic acid is really isomeric, and not identical, with lactic acid. So far as I recollect, Stenhouse merely determined the constitution of the acid, and did not make such a comparison of its salts with those of the ordinary lactic as seems necessary to establish this point in a thoroughly satisfactory manner. We now know two kinds of that acid, the common variety, and sarcolactic acid; and if you clearly showed that thebolactic acid is a third, it would be a matter of the greatest interest, and would well repay the labor it requires."

While Mr. Watts, in his Dictionary, says—"Anderson was not able to detect the existence of thebolactic acid in opium." Anderson says—"In my investigations of opium, I have not *attempted* to prepare thebolactic acid, but have confined my attention entirely to the basic constituents of opium."

We could not object to any one doubting that thebolactic acid was not the result of change in the juice of the poppy, after exudation or during manipulation, in the manufacture of morphia and other principles, any more than we could object to such a view in regard to meconic acid; but we think that, until the natural existence originally of these acids is disproved, it is fair to hold them as "*well-determined*" constituents. We would feel obliged to any one throwing more light on the matter, even if they proved the non-existence, naturally or originally, of thebolactic acid in opium.—*London Pharm. Journ.*, August 1, 1865.

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## MANUFACTURE OF SODA FROM CRYOLITE IN AMERICA.

To the Editor of the *Chemical News*.

SIR,—How comes it that the English soda ash manufacturers have allowed the Americans to steal a march on them in the matter of cryolite? A company here have secured, so I understand, the monopoly of all the cryolite mined in Greenland, except that used in Denmark, for the purpose of the manufacture of soda ash. Extensive works are going on up near Pittsburg, in this State. The process used is the Danish—*i.e.*, boiling in lime and precipitating the $Al_2O_3$ by $CO_2$. My informant is one of the capitalists of the company.

I think if the cryolite can be obtained in sufficient quantity, the importation of soda ash and caustic soda into this country is at an end, or rather will be. I fancied our manufacturers were pretty smart fellows, but they have let the Yankees get ahead of them in this case. All English manufacturers must look well to themselves, as the Americans are following very close at their heels, in some cases, tripping them up,

I am, &c. H. B.

Philadelphia, U. S., August 30.

*London Chem. News*, September 22, 1865.

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## THE RECIPROCAL ACTION OF GLYCERIN AND OXALIC ACID, APPLICATION TO THE INDUSTRIAL PREPARATION OF CONCENTRATED AND MONOHYDRATED FORMIC ACID.

By M. Lorin.*

Formic acid may be obtained by the splitting up of oxalic acid under the influence of glycerin. The preparation by this reaction is regular, provided water be added to the mixture so as to determine the separation of the dissolved formic acid, which is retained to about 200°, and finally decomposes into water and carbonic oxide. Procured in this way, the acid contains from 4 to 5 per cent. of real formic acid.

*I. Industrial Preparation of Formic Acid at 50 Centiemes.*—The mixture of ordinary oxalic acid with dehydrated or commercial glycerin is heated in a retort. At 75° the reaction will commence, and will be in full activity at 90°. Simultaneously with the disengagement of carbonic acid, an aqueous liquid passes, charged with formic acid. By the addition of a fresh quantity of oxalic acid—added some time after the carbonic acid has ceased to be disengaged—the decomposition immediately recommences; a liquid again passes still richer in formic acid; and by successive additions of oxalic acid, the richness in formic acid, of the liquid obtained during this series of reactions, is always on the increase, until it reaches a limit which is precisely that which crystallised oxalic acid should give. The equation—

$$C_4 H_2 O_8 . 4HO = C_2 H_2 O_4 + 4HO + C_2 O_4$$

**Comptes Rendus*, lxi., 382.

shows that 126 grammes of oxalic acid furnish 82 grammes of aqueous formic acid, which ought to contain, and, in fact, does contain, 56 per cent. of true formic acid. The existence of this limit is the result of the repeated and successive combination of the formic acid, held back by the glycerin, with this polyatomic alcohol,—a combination rendered especially evident by the fact that the quantity of water eliminated from the glycerin is equivalent to the quantity of formic acid fixed in each of the successive phases of the reaction.

In one series of experiments the aqueous formic acid from each kilogramme of oxalic acid, added in portions of 250 grammes, titrated 24, 44, 53; in a second series, 17, 33, 41, 46, 50, and 51·5; the standard was raised more rapidly at the commencement of the operation. The excess of water, shown by these experiments to exist in the first products, appears, then, to be the result of the formation of a compound of glycerin and formic acid, the acid being regularly produced only after this compound has ceased to be formed. The limit of saturation has been found to correspond to 70 centiemes of the quantity of formic acid which would have been necessary to saturate the glycerin, giving a monoformine.

This method of preparing formic acid of 56 per cent. is so continuous and regular that it is one of the easiest of chemical operations. No attention need be paid to the temperature, the disengagement of carbonic acid forming the initial and final phases of the operation. Starting with 1 kilogramme of glycerin, and by successively adding 250 grammes of oxalic acid, we obtain, for each kilogramme of acid added at one time, 650 grammes of formic acid at 56 per cent. It is moreover evident that under these conditions an equal weight of formic acid at 25 per cent. costs no more than the oxalic acid which has served to produce it; for by the addition of water, forming a litre of each quantity of formic acid collected in the second series of experiments, I obtained the standards 21, 26, 31, 33, 34. The glycerine being saturated, 1 kilogramme of oxalic acid furnished 1·5 kilog. of formic acid, at 25. The operation may be prolonged to any extent, and if after being used a long time it is found necessary to change the glycerin, it will be on account of the impossibility

of avoiding the almost imperceptible losses, and of the presence of impurities in the oxalic acid. I have, however, used the same glycerin for several months, the operations continuing incessantly night and day.

*II. Formic Acid at 75 Centiemes.*—By making dehydrated oxalic acid act on saturated glycerin, I obtain formic acid at an average standard of 75. The heat, however, requires very careful management to avoid frothing. The decomposition of oxalic acid commences at 50°.

*III. Monohydrated and Crystallisable Formic Acid.*—Monohydrated formic acid has hitherto been obtained by decomposing formiate of lead by sulphuretted hydrogen, a long and difficult operation, which in unpractised hands is rarely successful. I have, in the first place, substituted formiate of copper, comparatively a very soluble salt, for formiate of lead, it being more easily crystallised, dehydrated, and decomposed by sulphuretted hydrogen, and giving the theoretical quantity of formic acid. This is probably not the only case in which salt of copper would be preferable to salt of lead for the preparation of organic acids. It occurred to me, however, that the 25 per cent. of water might be eliminated from the 75 per cent. acid by the use of anhydrous oxalic acid. On making this acid react at 70° on formic acid, the temperature rises, the mixture becomes liquid when carefully heated, and when left to stand it crystallises; by decanting and distilling to separate the dissolved oxalic acid, formic acid, at a standard of about 100, is obtained, which, by a proper lowering of the temperature, gives crystallisable formic acid.

*IV. Various Experiments.*—In the course of these researches I have observed the following facts:—1. That of all the formiates, formiate of copper alone when decomposed by heat, gives formic acid of only a certain degree of concentration—82. 2. Whatever precautions I have taken, I have rarely obtained acids at 70 by the action of sulphuric acid on formiates, and those always in relatively small quantities. With biformiate I have been not more successful. 3. The splitting up of ordinary or dehydrated oxalic acid under the influence of acetic and formic acids, may be utilised in the preparation of formic acid. 4. Dehydrated oxalic acid, submitted to the moderate action of heat, furnished in one

experiment a considerable quantity of formic acid at 55°. 5. From a theoretical point of view the use of sulphuric acid as an absorbent of aqueous vapor, is of some interest. I have operated on formic acid at 57·5 in the months of November and December, at the ordinary temperature of the laboratory; by once in every three days weighing and taking the standard, always at the same hour, I was enabled carefully to follow the phenomenon. Water is always absorbed more rapidly than the acid, and the standard rises to 63; the relation between the acid and water converges, and remains at about the limit 1·7. This relation, which differs a little from $\frac{46}{27} = 1{\cdot}704$, seems to indicate, under these conditions, the existence of a hydrate of formic acid, corresponding to the formula—

$$C_2 H_2 O_4 3HO$$

Renewing the boiled sulphuric does not sensibly alter this relation. 6. The easier preparation of formamide, and especially that of pure carbonic oxide by formic and sulphuric acids, is another result of these researches.—*London Chemical News, Sept.* 29, 1865.

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## OXYGENATED SALINE WATERS.

BY B. W. RICHARDSON, M. A., M.D., LONDON.

Dr. Richardson laid before the British Medical Association specimens of oxygenated saline waters. In these solutions he had succeeded in combining peroxide of hydrogen (containing ten volumes of active oxygen) with various saline substances, and especially with salts of iron. The waters, when properly diluted, were almost tasteless, the taste being so unobjectionable that children could take them, and adults could drink them at meals in place of common water or other fluid. The solutions presented were a diuretic water, carrying nitrate of potassa, and spirit of nitric ether; a simple aperient water, conveying sulphate of potassa; and two chalybeate saline waters, one containing phosphate, the other persulphate, of iron, with a little free oxide of iron. The waters were all mildly aperient. They were used for adults in proportions of two ounces for a dose, ordinary water being added, so as to fill a tumbler. Specimens were diluted in this way, and handed to the members. Dr.

Richardson said that the water containing the persulphate of iron was the best chalybeate aperient he had ever used. It remained fresh for weeks, and in appearance resembled to perfection a natural mineral chalybeate water. It differed, however, from such water, in that it contained a little sugar and was rich in oxygen. Each dose contained a grain of the iron salt. The formula for this water was as follows:—

| | |
|---|---|
| Peroxide of hydrogen (Ten volumes of oxygen,) | ℥i. |
| Sulphate of potassa | ʒij. |
| Chloride of sodium | ʒiss. |
| Sulphate of iron | grs. xij. |
| Simple syrup | ℥i. |
| Water to | ℥xxiv. |

Dose: Two fluidounces to be taken with as much water as will fill a tumbler.

In obstinate cases of constipation with anæmia, and in cases of asthenic gout, this solution was most useful. The advantages derived from the peroxide of hydrogen in these waters were most important, the peroxide quickening the eliminative action, and producing free secretion and excretion.

In reply to a question as to the manufacture of these waters, Dr. Richardson said that any practitioners, who had the peroxide of hydrogen, could make the waters for themselves, but they were very efficiently made by Messrs. Garden and Robbins, of Oxford street, London.—*London Chem. News*, September 15, 1865.

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## ABSTRACT OF A REPORT ON THE PITAYO CINCHONAS.

By Mr. Robert Cross.

Mr. Clements R. Markham having been impressed with the importance of procuring seeds of the species of Cinchona which grow at and near Pitayo, New Granada, obtained the sanction of the Secretary for India to employ Mr. Cross in the service. Mr. Cross remarks that most persons who have written on the Cinchona of the Andes represent it as flourishing amidst perpetual torrents of rain and mist, and scarcely ever enjoying a moment of sunshine. He states that this is a mistake. No Cinchona

could live in such a climate, nor, even if planted in similar situations, could the trees ripen their seeds, for a certain amount of dry weather and sunshine is necessary for the ripening of the capsules, and for their bursting in order that the seeds may fall to the earth. The Cinchona climate is certainly moist for about six or eight months of the year, and in cultivating this plant it is expedient to seek very humid situations, because the mountains of India do not appear to receive the same amount of moisture as the lofty elevations in America. Nevertheless it will be understood that the natural climate of the commercial Cinchona has been misrepresented by most South American travellers. The Pitayo Cinchona differs essentially from the *C. lancifolia* of Karsten in being a more slender tree, often found formerly from 60 to 70 feet in height, but rarely more than 18 inches or 2 feet in diameter, with very slender branches, bearing small lanceolate leaves, which before falling always assume a purple or deep red color. The *C. lancifolia* to which Karsten refers extends over a wider tract of country than any other Cinchona on the Andes. This tree, however, is much more massive, and bears considerably larger leaves than those of the Pitayo Cinchona. This large-leaved Cinchona inhabits the western slopes of the Cordillera Orientale, in situations presenting conditions favorable for its development, between Pasto and the city of Santa Fé de Bogota; while the finer kinds of Pitayo bark are limited to a few square miles of steep forest-covered slopes to the northward of the volcano Purace, which belongs properly to the central Cordillera. The map of the Cinchona region of New Granada lately made for Dr. Weddel, is very incorrect. It represents certain tracts of country as mountainous, and as covered with Cinchona forests, while in reality they are hot arenaceous plants, or savannas covered with low spreading leguminous trees, where no Cinchona ever grew. Karsten states that the bark is not taken from the roots of the *C. lancifolia*, which, in most instances, is true; but this is not the case with that of Pitayo, the bark from the roots of which is much more valuable than that from the trunks or branches. Further he asserts that the *C. lancifolia* is never likely to become scarce, and that the continual cutting of the Cinchona trees will rather augment than diminish the number of plants; and this

may be true concerning his *C. lancifolia*, about which no one cares much, as the yield of quinine is often too small to cover the expense of collecting; but as regards the Pitayo bark there is one thing very certain, that at the present time there is more difficulty in collecting 1 lb. than there was formerly in collecting 1 cwt. The Pitayo bark will very probably be found the best of all the species for cultivation, as it is said to grow very rapidly, which is a matter of great importance. It may certainly be barked when it is 6 feet high, although it would not be an advisable practice to do so before the trees are at least 30 feet high. Bark taken from large trees in Pitayo was said to give nearly 4 per cent., while bark taken from the roots of the same trees gave 5 per cent. of quinine. All the bark taken from Pitayo is said to be sent to France. The bark sold in England under that name is not true Pitayo bark, but comes from the mountains which border on the valley of the Magdalena, and from Almaquer and Pasto, and is certainly from the *C. lancifolia* of Karsten, which as regards quality is very inferior to that of Pitayo. True Pitayo bark may be known in England by not being much thicker than common window-glass—because it is all taken from small plants, the large trees having been destroyed long ago, and by its being full of earthy particles, on account of so much bark being taken from the roots of the plants. Professor Jamieson, of Quito, analysed the Pitayo bark, and found it to contain 3·2 per cent. of quinine. There is, therefore, little doubt that this species, and the *Cinchona officinalis* of Loxa, will prove among the best for cultivation. The climate is like that of Loxa, and even the vegetation of both regions bears a close resemblance to each other. Don Narcso Lorenzano remarks that the principal motive which induced the Government of India to commence Cinchona cultivation, after overcoming so many difficulties, was the fear that the Quina trees would be extirpated in consequence of the waste that is allowed in the woods, where they are destroyed by the barbarous method of pulling up the roots. Fortunately this distructive method, which, without any doubt, would extirpate this precious plant in a few years, is only practised in the forests of Pitayo, where it is due to the immoderate desire for making money which has taken possession of the Indians, who own the

greater part of the land. But in none of the other establishments for the collection of bark in New Granada has a similar practice been adopted. On the contrary, beneficial rules are observed for the conservancy of the woods. The method consists in leaving a part of the trunk, about 3 feet in height, whence shoots may sprout, and in clearing away the surrounding trees to enable the rays of the sun to penetrate. By this means most of the trees that are cut down quickly shoot up, and, the rays of the sun penetrating to the cleared ground, the seeds which fall from the trees germinate freely. This result gives us full confidence that the good kinds of quinas which exist in this country will be permanently preserved.—*London Pharm. Journ., Sept.* 1, 1865, from *Gardeners' Chronicle.*

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## ON THE POSSIBILITY OF MANUFACTURING NÉROLI IN THE BRITISH COLONIES.*

By J. E. De Vrij.

When on my way to Java in the month of October, 1857, I passed through the South of France, my attention was fixed by the large number of orange trees cultivated in the neighborhood of Cannes, Grasse, &c., for the purpose of manufacturing néroli, which fragrant essence is exported from the southern parts of France, and from Italy, to England and other northern countries. The high price of this essence induced me to inquire if it would not be possible to manufacture it in the colony where I was going to reside for some years.

A few months after my arrival in Java I fortunately had the opportunity of putting my idea into practice. In Bandoug, the town where I lived, which is situate at an elevation of about 2300 feet above the level of the sea, I was struck in the months of October and November by the fragrant smell of orange flowers, which perfumed the whole neighborhood. Upon inquiring the cause, I found there existed in that part many thousand shaddock trees (*Citrus decumana*) whose flowers were the cause of the fragrance. This fact appeared very curious to me, for although the fruit of the good kind of shaddock is one of the most delicious fruits in

*Read before the British Association Birmingham meeting.

the tropic, this is only true when the tree is grown in very warm localities, as in the neighborhood of Batavia, situate almost at the level of the sea in about 6° South latitude.

In higher localities like that of Bandoug, where the average temperature is much lower than in Batavia, the fruit of the shaddock has only the size of an ordinary orange, and is not eatable. As the many thousand shaddock trees growing in the neighborhood of Bandoug were therefore almost useless, I thought it interesting to make some experiments on the preparation of the essence of shaddock flowers. This seemed the more interesting to me as I found the shaddock tree growing at an elevation of about 4000 feet, producing an abundance of flowers. The fact that I once collected from one tree in my garden not less than 200 lbs. weight of flowers proves the abundance of flowers that may be obtained under happy circumstances.

I must mention that the wood of the tree is very hard, and acquires a beautiful yellow color; it may also prove to be of some value.

After a great many distillations of several hundred-weights of fresh flowers, the result was that the average quantity of essence yielded by 1000 lbs. weight of fresh flowers was 1 lb.

Having ascertained the amount of product, the following question arises:—Is the essence obtained by me from the *petala* of the shaddock trees identical with the essence of orange flowers called néroli? The result of my experiments in this direction was, that the two essences are really identical, which conclusion was afterwards confirmed upon my return to Europe, by the principal manufacturers of perfumes, whom I consulted on this subject, and who declared the essence of shaddock flowers prepared by me to be identical with first rate quality of néroli.

Another question of importance also arises:—Would the manufacture of néroli in the tropical countries pay? This can only be answered by practical experience. In Java, where I made my experiments, the local circumstances are such that the manufacture would certainly pay.

But besides the néroli obtained by distillation of the flowers, there remains in the still after the distillation a substance which deserves attention, if ever my plan of preparing néroli in the

tropical colonies should be carried out. If the residue in the still is thrown, yet boiling, upon a cloth, the clear yellowish liquid which passes through the cloth deposits after a few days a large amount of yellow crystals. My experiments with these crystals have proved that they are identical with the substance discovered in 1828 by Lebreton in unripe bitter oranges, and called by him "hesperidine." This hesperidine, which I find very widely spread in the genus Citrus, is the pure, bitter substance contained also in orange peels. As this hesperidine is a pure and quite innocent bitter substance, which can be obtained easily, and in tolerably large quantities, from shaddock flowers, it deserves, perhaps, attention as a substitute for hops.—*London Chemical News, Sept.* 29, 1865.

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## GALE'S NON-EXPLOSIVE GUNPOWDER.

Mr. Gale is repeating his experiments in various places with undoubted success, and the subject is attracting much attention. The secret is now made known by the publication of the patent, and we learn that the incombustibility is produced by mixing one part of gunpowder with three or four parts of finely powdered glass. By the addition of this powder, every grain of gunpowder is isolated, and thus only those grains are ignited which come immediately in contact with the source of heat. Mr. Gale is not the first who has experimented in this direction.

A French and a Russian chemist have both made experiments on the subject. M. Piobert, in 1835, tried a variety of substances, and among them sand. He tried, also, the separate constituents of gunpowder, and, of the three, gave preference to nitre, which he found to deprive gunpowder of its dangerously explosive character. M. Fadéieff, the Russian, preferred a mixture of wood charcoal and graphite, which he found to be unaffected by moisture. Mr. Hearder has lately found almost any dry compact powder will answer the purpose, and states that pipe-clay, gypsum, or chalk do very well. Our readers know that Mr. Gale only proposes that stored gunpowder, and powder for transport, should be treated with his process. When this powder is required for use, the fine glass is separated by

means of a sieve, and the question which is engaging attention is, whether or not the powder is damaged by being submitted to this treatment. One writer suggests that glass powder is liable to become alkaline, and therefore hygroscopic. Mr. Hearder objects that it may not be possible to separate the glass completely, and therefore the explosive force of the powder must be more or less diminished. The *Reader* mentions some experiments which "seem to show that the addition of the protective powder to ordinary powder has the effect of rendering the explosion more gradual"—an effect which would be valuable, if the protective powder were combustible. We have not seen any notice of the effect of the glass on the glazing of the powder, any interference with which would seriously affect the quality of the powder, particularly of the finer kinds. On the whole, we must conclude that the practical value of Mr. Gale's invention has yet to be demonstrated. It is, indeed, very desirable to have a means of rendering gunpowder combustible or non-combustible, at will; but to be really available, the results must be accomplished with less trouble and risk than is the case with Mr. Gale's process.—*London Chem. News*, August 18, 1865.

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## EXPLOSIVE FORCE OF NITRO-GLYCERIN.

Experiments have been made in the open workings of the tin mines of Altenburg, in Saxony, by M. Nabel, which prove that the use of nitro-glycerin, for blasting purposes, is quite practicable. Its chief advantage is, that it requires a much smaller hole or chamber than gunpowder does, the strength of the latter being scarcely one-tenth of the former. If the boring presents fissures, it must first be lined with clay to make it watertight; this done, the nitro-glycerin is poured in, and water after it, which, being the lighter liquid, remains at the top. A fuse is then applied in the usual manner. In one of the experiments referred to, a bore-hole one and one-third inch in diameter was made perpendicularly in a dolomitic rock, sixty feet in length, and at a distance of fourteen feet from its extremity, which was nearly vertical. At a depth of eight feet, a vault, filled with clay, was found, in consequence of which, the bottom of the hole

was tamped, leaving a depth of seven feet. Nearly three pints of the nitro-glycerin was then poured in—it occupied five feet; a match and stopper were then applied, as stated, and the mine sprung. The effect was so enormous as to produce a fissure fifty feet in length, and another of twenty feet. The total effect has not yet been ascertained, because it will require several small blasts to break the blocks that have been partially detached by this.—*London Chem. News*, August 25, 1865.

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## ON EMULSIONS.

By Mr. Barnard S. Proctor.

In our published list of subjects for investigation, my name stands as having undertaken the study of emulsions. At the time this promise was made, I was aware that I could not work it to a satisfactory conclusion in the course of the year, but circumstances soon occurred which made it impossible even to get it so far advanced as to justify a report of progress; unwilling, however, to let the meeting of the Conference for 1865 pass without some communication from myself, I may state to you how the subject arose, and what I had proposed to do.

The subject suggested itself to me, some years ago, from observing that a mixture which was made with balsam of copaiba and an alkali, was, from some cause, a very imperfect emulsion, and that a further addition of alkali rendered it still less satisfactory. At another time I noticed that in making Locock's lotion (from Beasley's formula), a less perfect emulsion was formed, when strong solution of ammonia was used, than when it was prepared with that of ·960 sp. gr.; and that it was most perfect when the mixture was so long rubbed in the mortar, that great part of the ammonia evaporated. These were crude and casual observations. I was not prepared to say whether it was much rubbing or much evaporation which was the cause of the superiority in the latter case, but I was impressed with the subject as being one worth looking into. I remembered often observing that soap was much more effectual than caustic alkali, for removing grease from bottles; I bore in mind also, that most, if not all the natural emulsions, were not far removed from neutral-

ity. These floating thoughts, not systematized, but not forgotten, were occasionally turned over, in the hope that they would at last germinate and give rise to a crop of facts which should prove of practical value.

Questions spring up like weeds in uncultivated ground; they are abundant in the field I have entered upon. I propose now to show you the most conspicuous of these spontaneous growths; some time, probably a long time, must elapse, before I can hope to present you with the answers which should be the produce of cultivation.

The first question is, what is an emulsion? Is it essentially a watery fluid, holding in suspension an oily or resinous body? The term is a very indefinite one; all emulsions separate into two parts in the course of time, and we cannot say exactly how slow the separation should be to entitle the mixture to be considered an emulsion. Nor is there any evident reason why other fluids, or fluids and solids, mixing in a similar way, should not be considered emulsions. Milk and chyle may be considered animal emulsions, and the juices of *Taraxacum*, *Chelidonium*, or *Ficus elastica*, may be regarded as natural emulsions from the vegetable kingdom; and we would not wait till we had ascertained the length of time required for the separation of their parts, not till analysis had proved the nature of their proximate constituents, before pronouncing them members of the emulsion family. My first queries were in reference to the state or mechanical nature of the mixture. I asked myself, are the suspended particles always spheroidal? If not, are emulsions more perfect when they are so?

Then a series of chemical questions arose. Do alkalies promote and acids hinder emulsifaction? Are the naturally emulsible gum resins neutral? Then a group of physical problems, such as the relation between colloid and crystalloid conditions and emulsibility, and the questions, do substances which promote frothing, the mechanical division of air, also promote emulsifaction, the mechanical division of oil, etc.? These, with many other questions, appeared to occupy an ample field for both inductive and deductive work, in which I had hoped to establish a few interesting principles, and, by the application of these princi-

ples, to lay down a few general rules of practical utility to the pharmaceutist. I commenced work by experimenting upon simple oils and water, without addition.

Taking an ℥iss phial, and putting into it half an ounce distilled water, and 1 drachm olive oil; shaking them together, and noting the kind of mixture and the time required for separation; then adding oil, drachm by drachm,—making the observations till there were 6 drachms of oil to 4 of water. Then commencing again with 4 drachms of oil to one of water, the reverse of the proportions first mixed, repeating the observations, step by step, as water was added, drachm by drachm, up to 4 drachms. Had I been able to devote the requisite time to the subject, I should have made similar experiments with almond oil, castor oil, linseed oil, balsam of copaiba, and other materials, as they suggested themselves, and then proceeded to ascertain the effects of introducing other chemical or mechanical elements into the operation; but the series of observations which thus should have been counted by hundreds, was unexpectedly cut short before it reached the tenth of its expected dimensions, and I have now only to draw your attention to two or three points which already bear some interest.

When olive oil was added to water, the mixture separated most slowly when the proportion was 3 drachms of oil to 4 of water, the time required increasing with each drachm of oil up to this proportion, and again decreasing with further additions, till the proportion was 6 of oil to 4 of water. When water was added to olive oil, the separation takes place much more slowly than in the former case; and, when it had been added drachm by drachm, with agitation at each step, till there were equal parts of each, the separation took place only in several hours, instead of as many minutes, which had sufficed in the former case. And there was no less difference in the mixing than in the separating. In the first series the mixing, as far as the fluids seemed likely to mix, was effected by a few seconds of brisk agitation; but, in the second series, a quarter of an hour's agitation or more was required to effect the mixture of the third and fourth drachm of water, and, when it did take place, the mixture became so thick, that it would not rattle when the bottle was violently shaken.

A careful examination of two mixtures, each containing equal parts of oil and water, but in the one case, the oil being added drachm by drachm to the water, with agitation between each addition, and, in the other, the water being added in like manner to the oil, showed, that in the former, the oil was suspended in the form of globules, the water occupying the interspaces; and, in the latter case, the water was globular, the oil of course occupying the interspaces. As in the ordinary cases of emulsion, the oil is globular, we will, for convenience, call this condition of positive emulsion (+), and when the water is globular, name it a negative emulsion (—). From one or two observations, (+) emulsions mix freely with water, but not with oil, that is, if poured into it, they settle to the bottom as a distinct layer, while a negative emulsion poured into oil diffuses through it, but poured into water refuses to mix; if agitated with a large bulk of water, it separates into globules, but each globule is not a globule of oil, but of (—) emulsion.

Two drops of ·960 ammonia being added to $\frac{1}{2}$ oz. of one of these (—) emulsions caused speedy separation of great part of the water, the oily portion floating like cream on its surface, but did not mix upon agitation; a further addition of ammonia converted the whole into an ordinary emulsion.

I have not yet sought for an agent that would convert a (+) emulsion into a (—) form, though such will probably be found in some lead compounds, judging from a casual observation. The (—) emulsion being so thick, so nearly solid, I put some shot into one of them to facilitate the further mixture of water, which it did in so marked a manner that I judged it not a purely mechanical effect; the more so when I ascertained that fine gravel did not act in a like manner, but each little pebble attracted to its surface a film of water. The shot did not specially attract either water or oil.

2 drachms of oil and 4 of water, being converted into a (—) emulsion by ten minutes' agitation with clean shot, showed scarcely any appearance of separation after standing at rest for four days.

Castor oil and almond oil both showed much less willingness to mix with water in anything like equal proportions, only a small

portion of oil remaining suspended in the water, and a small portion of water in the oil. Balsam of copaiba very readily yielded a negative emulsion when agitated with successive small portions of water till the bulk of water equalled or exceeded that of the balsam; it was a thick creamy yellowish semifluid: the addition of a little solution of potassa made it much whiter and mobile, by converting it into a positive emulsion.

Solution of bicarbonate of magnesia promotes the formation of negative emulsion between water and almond oil; solution of diacetate of lead has the same effect with water and olive oil; the addition of acetic acid to the latter till it had an acid reaction did not alter its character.

Two or three years ago, while experimenting upon the intersolubility of liquids, I observed that strong liq. ammoniæ, agitated with an equal bulk of ether, boils violently. They become viscid and opalescent if agitated in a stoppered bottle, and if the stopper be removed while they are mixed the disengagement of gas throws the fluids out of the bottle; but if allowed to separate under pressure they are not disturbed by the removal of the stopper. From the viscidity of the mixture of two liquids usually so mobile, I conjectured they were in the condition of a negative emulsion.

The relation of emulsibility to intersolubility is a branch of the subject suggestive of interesting speculations.

There is also an interesting group of questions to be investigated, relating to the influence of the relative density of the suspended matter and its medium, the state of division to which the former is reduced, and the viscosity or mobility of the latter and their effects upon emulsifaction. That density alone is not sufficient to ensure rapid subsidence we have illustrated in the observations recorded by Faraday (on gold in relation to light), in which he found gold in a fine state of division remained suspended in water for months.

I have added one or two observations which bear also upon the mobility of the liquid,—1 grain of heavy carb. magnesia was added to each of the following liquids in tubes of similar size and shape:—water, rectified spirit, ether, chloroform. In the two latter, the magnesia took a somewhat clotty condition, and settled

rapidly, the liquids differing greatly in their density, but both having great mobility. In the two former (water and spirit) the subsidence was much slower, and there was no tendency to clot, the liquids occupying a position between the two former, as regards density, but being inferior to them both as regards mobility.

The experiment was repeated, substituting fine powdered charcoal for magnesia. The subsidence was in all cases slower, but the relation before observed was still maintained. In the water and spirit subsidence was not more complete in twenty-four hours than it was in the chloroform and ether in as many minutes. The charcoal also appeared a little clotted in the chloroform. We may conjecture that the great mobility of chloroform facilitates the action of the agglomeration forces, while its density subtracting from the effect of gravitation allows them time to manifest their action.

The recent experiments of Mr. Crookes, showing how readily mercury may be divided when its surface is tarnished by sulphuretted hydrogen, and how readily it again unites when sodium is supplied to abstract the sulphur, suggests that we should look for a film upon the surface of the globules of emulsified oil, and that materials which cause the separation of the oil, may do so in virtue of a power of dissolving or decomposing this film.

In concluding these observations, let me express a hope that some other members of the Conference will add a few notes to my own. On the list of subjects for investigation it is stated that I will be glad to receive communications upon the subject. I have not received a line from any one. I cannot but think that many gentlemen may have fragments of information which while isolated appear valueless; let me assure all my fellow-members that no observations are too fragmentary or isolated to be thankfully received. To any one engaged in an investigation the most trifling matter is not to be overlooked, and communications always act as an encouragement and stimulant to continued work.

11, Grey Street, Newcastle-on-Tyne, July, 1865.

—*London Pharm. Jour. Oct.* 1, 1865.

## TANNIN IN BRITISH GALLS.

By William Judd, F.C.S.

Having noticed for some three or four years past the large quantity of galls on the oaks in this neighborhood, the question naturally occurred, Could not these galls be turned to some practical account? When, therefore, this subject was proposed for investigation by the British Pharmaceutical Conference, I gladly undertook to do what I could to set the matter at rest. Great differences of opinion appear to exist as to the value of these galls, and those who have examined them have arrived at very various conclusions. This may have been partly attributable to the different ages of the galls in which the tannin was estimated.

The questions proposed are, "What is the quantity of tannin in English galls (*Cynips Quercus-petioli*) at different stages of their growth? Can they, at either of these periods, be employed economically as a substitute for the nut-galls of commerce?"

The reply to the second question must obviously depend on the results obtained in investigating the first.

My first aim was to ascertain the most trustworthy and simple process for estimating the quantity of tannin present. The gelatine process being open to many objections, I endeavored to substitute some other. The plan recommended by Mr. Marriage in Pharmaceutical Journal, vol. iii. p. 509, with ammonio-sulphate of copper, was inadmissible on account of the dense color of the fluid obtained by percolating or macerating the galls. The gallotannates of lead and antimony are said by Miller to be insoluble, and I attempted to found a process on this fact, but without success. These compounds are not so insoluble as stated. Many other plans were tried, but with them all there was some difficulty or obstacle that rendered the process useless. I was obliged, at last, to adopt the gelatine process, modified by the addition of alum, as suggested by Müller.

It is unnecessary to detail all the experiments; suffice it to say, the following results are the mean of several trials, the galls also being exhausted in various ways:—

I. I first examined a sample of old galls, which had hung on the trees till Christmas, of course perforated by the escape of the

fly. They were found to contain an average of 15·97 per cent. of tannin.

II. Galls gathered when mature (in the month of August), not perforated. These were found to contain 17·65 per cent. of tannin.

III. Galls gathered when about half developed and dried, producing a more dense and shrivelled gall. These contained 13·4 per cent. of tannin. It appears from this that the mature galls, gathered before the escape of the fly, contain, as might have been expected, the largest quantity of tannin.

With these data we may turn to the second question, "Can they, at either of these periods, be employed economically as a substitute for the nut-galls of commerce?"

The quantity of tannin contained in Aleppo galls, as stated by various authors, ranges from 30 to 65 per cent., which is obviously much more than that contained in these British galls; yet, with so considerable a percentage of tannin, there are probably some uses to which they may be advantageously applied. I have not yet been able to make any experiments with a view to ascertain if gallic or tannic acids may be commercially prepared from them. I will, however, if deemed desirable, take up that point and report thereon at the next meeting of the Conference.

One purpose for which these galls may undoubtedly be used is that of dyeing; and as large quantities of Aleppo galls are constantly in demand for this purpose, British galls would here find one of their most important applications. Another use would be in making ink. I have made some ink from a formula known as Wollaston's, using the same weight of British as Aleppo galls. The product is a fair average ink, with which this paper is written. I used the old perforated galls; had I used a larger quantity of these, or used some of the mature galls, it would probably have made a better ink. No other tannin-yielding material was added. They might also be used for some kinds of tanning Oak-bark, according to Davy, yields from 5 to 7 per cent. of tannin, with which these galls stand in favorable comparison, and they might, in some cases, be advantageously substituted.

The quantity of these galls in some districts is very considerable, and their collection in quantity would be easy.

In conclusion, I may advert to a peculiarity I am unable to explain, which is the dense color of an aqueous solution of the galls, the galls themselves being light in color and very porous in texture.

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Dr. ATTFIELD said he had just received a letter from Dr. Wilmot, of Tunbridge Wells, confirmatory of Mr. Judd's results. From a rough examination Dr. Wilmot had found a large quantity of tannin could be obtained from English galls, but that they must be gathered at a particular period of growth. He hoped that if we were to suffer from a pest which was certainly on the increase, some good might be derived from it, and some check in its advance be furnished by the very means whereby that good was to be obtained.

—*London Pharm. Jour. Oct.* 1, 1865.

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## ON ITALIAN CASTOR OIL.

Dr. Attfield stated that Mr. Henry Groves, of Florence, was engaged in ascertaining for the Conference the cause of the absence in Italian castor oil of that unpleasant taste characteristic of the chief commercial varieties of that well-known medicine, and would probably send a paper on the subject to the next meeting in 1866. Meanwhile, a recent pupil, Mr. Phillips, now of Naples, had sent him some remarks on the matter, which might be read at the present meeting, and would thus probably aid Mr. Groves in his investigation. Mr. Phillip's letter was as follows:—

14, *Strada S. Carlo, Naples.*

Dear Sir,—Seeing that the question No. 131 had been accepted by Mr. H. Groves, I thought it unnecessary to trouble you with any further remarks on the subject, nevertheless it has occurred to me, even at this late moment, that my promise ought to be kept, although I can but offer but little information on the subject in question.

The castor-oil plant here attains a height of from 10 to 16 feet, and is generally biennial, sometimes triennial; the seeds, which are ripe in the middle of autumn, are generally smaller than the East Indian, some are of a uniform dark color, others very prettily streaked.

The oil is generally prepared during the following summer, the warmth of the weather causing a more abundant yield of oil.

The outer skin is removed by cracking the seeds with a hammer on a marble slab, which operation is performed by women, the skins being blown away by a kind of fan; they are then placed in the press which is lined with filtering-paper, pressure is applied very gently, and extends over several days, the oil is again filtered as it runs from the press, and is set aside that any little fecula still remaining may deposit. Exposure to the sun is always avoided, from its tendency to produce rancidity. This oil is of a very pale color, nearly odorless, and possesses hardly any taste. Unfortunately, the wholesale price of this oil is the same as the retail price of much that is sold in England, therefore very little can find its way into the English market.

The variety of Italian castor oil prepared for exportation is made at all seasons of the year; very little care is taken in decorticating the seeds, which are triturated between stones into a paste before pressing, and steam heat applied during the process. Frequently they are beaten with the skins into a paste, and the oil then filtered through paper or flannel after having been mixed with animal charcoal, the filtering being conducted in a heated room.

I have learnt from good authority that large quantities of East Indian seeds are imported into Italy, and furnish much of the oil exported from this country.

The oil last mentioned has a much stronger odor, and more acrid taste, and is also more colored than the first; but is less disagreeable (when from Italian seeds) than the Indian or American oils. With regard to the real question, as to the cause of the less nauseous taste of the "Italian Oil," I can only ascribe it to the fact of the oil being prepared from fresh seeds, well decorticated, often not bruised, and without heat. The oil obtained from seeds three or four years old has a much stronger odor and taste, in fact the oil keeps sweet much longer when expressed than in the seeds.

The variety exported, if prepared from fresh seeds and without much heat, enjoys to some extent the same properties, and is more active than the finest variety.

The seeds themselves are sometimes used as a purgative, two seeds grated and taken in water having the same effect as an ounce of oil.

The oil is often taken in the form of an emulsion. 1 oz. with 1 oz. of syrup, and ¼ oz. powdered gum, are well mixed in a dry mortar, stirring always in the same direction. When it becomes sticky, a little peppermint or orange-flower water is added, and 4 oz. distilled water gradually stirred in. This forms a most elegant emulsion, with scarcely the slightest taste of the oil; it is called here, "Olio di Ricini a l'Inglese."

I fear that little service will be rendered to the Conference by this very imperfect description of the Italian process for obtaining the oil, and must apologize for my neglect in not writing sooner. If at any time I can furnish you with any information respecting the processes here employed in the production of pharmaceutical products, I shall be most happy to do so.

With much respect, believe me, dear Sir, yours truly,

JOHN PHILLIPS.

—*London Pharm. Jour. Oct.* 1, 1865.

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## TEST FOR OTTO OF ROSES.

Hager mixes five drops of the otto to be tested with twenty drops of pure concentrated sulphuric acid. Whether the oil be adulterated or not, a thick yellowish brown or reddish brown mixture results. When this mixture is cold, it is shaken up with three drachms of absolute alcohol. If now the otto is pure, a tolerably clear yellowish brown solution results, which, after heating to boiling, remains clear. But if the otto is adulterated with geranium, palm rose, or pelargonium oil, the solution remains very cloudy, and in some cases a darker fluid separates, in which a deposit forms. On heating this solution, the sediment melts together, and from the size of the mass the author infers the degree of adulteration. If, for example, the mass has one-fourth the volume of a drop, he concludes that the otto was mixed with at least one-third of foreign oil. If the otto is adulterated with spermaceti, this substance separates and floats on the surface of the solution, or remains suspended in the liquid as a scaly crystalline mass. The above test is founded on the circumstance that pure otto of rose forms, with strong sulphuric acid, a resinous substance, which is completely soluble in absolute

alcohol; while the substance formed with other oils is only partially soluble. Guibourt has observed that the odor of pure otto is not affected by mixture with strong sulphuric acid, but if other oils are present a disagreeable odor is developed.—*Chem. News, Oct.* 13, 1865, from *Zeitscht. fur Analyt. Chem.*, No. 4, 1864, p. 479.

## Abstract of the Minutes of the Philadelphia College of Pharmacy.

The semi-annual meeting of the Philadelphia College of Pharmacy was held at the College hall, September 25th, 1865.

The Minutes of the last meeting were read and adopted The minutes of the Board of Trustees were read by the Secretary.

The delegates to the late meeting of the American Pharmaceutical Association, which assembled in Boston, reported that several interesting sessions of the Association were held, and a cordial welcome extended to the delegates and strangers in attendance by the Boston members.

The semi-annual election being ordered, Wm. C. Bakes and S. N. James, acting as tellers, reported the election as

*Trustees.*

| | |
|---|---|
| Dr. W. H. Pile, | Edward Parrish, |
| A. B. Taylor, | Evan T. Ellis, |
| Wm. C. Bakes, | Wm. J. Jenks, |
| H. N. Rittenhouse. | Chas. Shivers. |

*Committee on Deceased Members.*

Edward Parrish, William Procter, Jr., Charles Bullock.

The Chair announced the decease of Algernon S. Roberts, one of the original members of the College.

A copy of the certificate of the Massachusetts College of Pharmacy was presented to the College. On motion, the Secretary was directed to forward to the Massachusetts College of Pharmacy a blank copy of the diploma and certificate of membership of this College.

On motion, then adjourned.

CHARLES BULLOCK, *Secretary.*

## Varieties.

*American Sienna.*—A valuable repository of this precious pigment exists in the town of Whately, which will soon be reported upon, and is destined to be brought into extensive use.—*Amer. Jour. of Science and Arts*, July, 1865.

*The Production of Organisms in closed vessels.*—As appears from an abstract in the *Reader* of May 20, a paper by George Child, M.D., in continuation of a former communication, was read before the Royal Society, April 27. Dr. Child's experiments were similar to the earlier ones of Prof. Wyman, and reach the same results, viz., that Bacterians are produced "exactly under the circumstances in which M. Pasteur asserts that they do not exist." And he accounts for the discrepancy thus: "M. Pasteur, in his memoir, speaks of examining his substances with a power of 350 diameters. Now my experience throughout has been, that it is impossible to recognize these minute objects, with any degree of certainty, even with double that magnifying power. When once their existence on a slide is shown with a power of 1500 to 1700 diameters, it is quite possible afterward to recognize the same object with a power of 750," &c. He continues: "I can now have no doubt of the fact that 'bacterians' can be produced in hermetically sealed vessels, containing an infusion of organic matter, whether animal or vegetable, though supplied only with air passed through a red-hot tube, with all necessary precautions for ensuring the thorough heating of every portion of it, and though the infusion itself be thoroughly boiled. . . . "It seems clear that either (1) the germs of Bacterium are capable of resisting the boiling temperature in a fluid, or (2) that they are spontaneously generated, or (3) that they are not 'organisms' at all. I was myself somewhat inclined to the latter belief concerning them at one time; but some researches in which I am now engaged have gone far to convince me that they are really minute vegetable forms. The choice, therefore, seems to remain between the other two conclusions. Upon these I will not venture a positive opinion, but remark only, that if it be true that 'germs' can resist the boiling temperature in fluid, then both parties in the controversy are working upon a false principle, and neither M. Pouchet nor M. Pasteur is likely at present to solve the problem of spontaneous generation." The decided conclusion as to the organic character of these Bacteriums was reached through an examination of them by the $\frac{1}{50}$ object-glass recently constructed by Messrs. Powell and Lealand.—*Amer. Jour. of Science and Arts*, July, 1865.

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# Editorial Department.

Meeting of the American Pharmaceutical Association.—In order to give a full account of the proceedings of the late meeting at Boston, we have printed an additional form. Through the courtesy of Prof. Maisch, the permanent Secretary, we have been able to extend greatly our own notes by an inspection of the stenographic report of the proceedings. It has become a sort of law that scientific papers read at the Association shall only reach the journals through the official proceedings, and hence

we have not been able to offer any of them to our readers. The printing of the discussion on the subject of alcohol in connection with the internal revenue tax is nearly in full detail, and will be interesting to many. The spirit with which the sessions were animated, the full attendance, and the large number of new members, all rendered it one of the most successful gatherings that have taken place, and fully repaid the time and expense of getting there. The members of the Massachusetts College of Pharmacy were unremitting in their exertions to add interest to the occasion, by well-timed movements outside of the meetings. On the evening of the first day, an impromptu visit of the Boston members and their wives, to the visiting members of the Association and their wives, at the Tremont House, was admirably managed; breaking the ice of reserve, and rendering the members better acquainted than a whole series of sessions would have accomplished. In the midst of the pleasant intercourse, it was announced that the authorities of the hotel required the parlor vacated, when the company, following a worthy Ex-President, soon found themselves in an apartment, wherein a table spread with many delicacies invited them to partake of its bounty.

The ladies were well cared for during the sessions of the meeting, and, through the agency of Mr. William Brown and some of the Boston ladies, visited numerous places of interest in Boston and its vicinity, so that the time passed agreeably and rapidly. Not satisfied with this, on Thursday afternoon the whole Association adjourned to meet on a steamer at India Wharf, with the flag of the Massachusetts College of Pharmacy at the bow, and proceeded down the harbor into Massachusetts Bay, among the forts and islands, calling at Nahant for a short visit at that noted watering place, and debarking at Point Shirley, to partake, at Taft's Hotel, of a regular fish supper, in true Boston style. More than two hundred sat down to the repast, whilst the band accompanying the excursion discoursed sweet music. Many strangers had an opportunity of partaking, for the first time, of a real Yankee *chowder*, of approved quality, as a preliminary, and pronounced it good; when other, and numerous delicacies, of fish, flesh, fowl and fruit, vied with each other in tempting the appetite. The party re embarked at 8 o'clock, and, after a most delightful moonlight excursion to Fort Warren and along the harbor, returned to the city, much gratified with their experience of Boston hospitality and attentions.

We must not forget to notice a visit to the great organ at Music Hall, planned by the Committee of Arrangements, where, for a full hour, this extraordinary instrument poured forth its wealth of sounds with a magnificence of compass, depth, and sweetness intensely gratifying to the visitors, most of whom had not heard it before.

Such are a few of the episodes of the meeting, which, all in all, will long be remembered as the best attended, most animated, and most harmonious of the annual gatherings of the Association.

THE BRITISH PHARMACEUTICAL CONFERENCE.—This body commenced its annual meeting on Tuesday, Sept. 5th, 1865, at Odd Fellows' Hall, Birmingham, England, Mr. Henry Deane, President. About seventy members were present, including many of the most prominent pharmaceutists of England. One hundred and eight new members were elected at the first sitting. The report of the Executive Committee was then read by Dr. Attfield, followed by President Deane's Address, which is a document of considerable interest and spirit. The reading of papers then commenced. Of these about thirty were read during the several sittings, and after each paper a discussion of its merits, or remarks in reference to it, were made, a feature to some extent adopted in our own Association. The Editors of the Pharmaceutical Journal for October 1st have published the proceedings in full, by issuing a double number, 82 pages of which are thus occupied. Two or three of these papers are included in the present number of this Journal. On Friday evening, Sept. 8th, a Conversazione was held at Odd Fellows Hall, followed by a supper. At the final sitting of the Conference, held Sept. 12th, officers were elected for the ensuing year. These are, Prof. Bentley of the Pharmaceutical Society, President; Mr. Deane, Mr. Edwards of Liverpool, Mr. Hanbury, Mr. Parr of Nottingham, and Mr. Stoddard of Bristol, as Vice Presidents. Dr. Attfield continues Secretary, assisted by Mr. Reynolds of Leeds.

The meeting was considered to be highly successful, and adjourned to meet in Nottingham in September, 1866.

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MEETINGS OF PHARMACEUTICAL ASSOCIATIONS IN GERMANY.—The meeting of the Allgem. Oesterr. Apotheker Verein (General Austrian Apothecaries' Association,) was held at Graz. During the different sessions seventy-five members were present. On the evening of the 15th of August, the majority were present at a social entertainment. The sessions commenced at 10 o'clock on the 16th, with the usual annual reports; afterwards, the creation of a general Austrian Apothecaries' Pension Fund was resolved upon, and the Constitution for the same considered. At two o'clock the Association, with many ladies, sat down to a festive dinner. On the 18th the Association, accompanied by their ladies, made an excursion to rolling works, glass factories, and coal mines in the neighborhood. The last session took place on the 19th; a library and a collection of drugs and preparations was established, and a pharmaceutical laboratory, to be established in Vienna, resolved upon. Delegates were elected for the meeting of the General German Apothecaries' Association, at Brunswick, and the International Pharmaceutical Congress. Discourses were delivered on several interesting subjects, among which we enumerate one on drugs from tropical countries, by Mr. Dietrich, of Prague; on Castor, by Mr. Tucks, of Vienna; and, by Dr. Ledlitzki, of Vienna, on a colony of castors kept by Prince Schwarzenberg, in Bohemia.

The specimens exhibited consisted, among others, of all varieties of

Cinchona bark, different kinds of rhubarb, the rarer kinds of jalap, of rare illustrated works on Natural History, of microscopical specimens, of chemical and pharmaceutical apparatus, &c. The Association, which has been in existence only four or five years, consists of 608 members, and has in the Treasury the sum of 6140 guilders ($2947.)

The Committee of the North German Apothecaries' Association has published the following programme of the annual meeting, which was to be held at Brunswick:

Monday, Sept. 11th.—Reporting of members to receive their cards; in the evening social entertainment.

Tuesday, Sept. 12th.—9 o'clock, A. M., general meeting; 2 P. M., festive dinner; evening, concert.

Wednesday, Sept. 13th.—8 o'clock, A. M., conference of the directors; 10 o'clock, general meeting; 2 P. M., dinner; evening, theatre.

Thursday, Sept. 14th.—Excursion to Harzburg.

Friday, Sept. 15th.—Commencement of the International Congress of the deputies of the different Pharmaceutical Associations.

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*Materia Medica, for the use of Students.* By John B. Biddle, M. D., Prof. of Materia Medica in Jefferson Medical College, &c. With illustrations. Philadelphia, Lindsay & Blakiston, 1865, pp. 359, octavo.

This work, which originally appeared as a "Review of Materia Medica," has, in this new edition, been enlarged and the title changed. It has been adapted to the new Pharmacopœia, and many of the articles have been rewritten. It is intended as a guide book to the course of lectures delivered by the Author at the Jefferson Medical College, and, without taking the place of the Dispensatory, will be found to be a good text book to the student who desires to closely follow his teacher. The work is well arranged, well printed, and carefully corrected. Had the space allowed it would have been well to include notices of a larger number of our extensive indigenous plants, very many of which are noticed and figured.

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*Stimulants and Narcotics, their mutual relations; with special researches on the action of Alcohol, Ether, and Chloroform on the vital organism.* By Francis E. Anstie, M. D., M. R. C. P., Assistant Physician to Westminster Hospital, lecturer on Materia Medica, &c. Philadelphia, Lindsay & Blakiston, 1865, pp. 414.

It is not much to say that this book has involved a very large amount of thought and experimental investigation, indicating a thoroughness which places it along side of Headland and other similar books. The author says, "in order that we may start fairly in the inquiry which is before us, let us understand what are the acknowledged elements of the problem to be solved. They are simply the existence of two classes of physiological agents, respectively known as Stimulants and Narcotics (or Sedatives),

and of an intermediate class, known as Narcotic Stimulants (or in looser phraseology, as Narcotics), all three classes acting upon the nervous system; the stimulants having the power of exciting its action; the sedatives of depressing the same; and the narcotics, or narcotic stimulants of producing both kinds of effect. It is to the latter class, as forming the meeting point of the two kinds of physiological action that our closest attention will be required, and it is to this class that the three substances which have been chosen for detailed investigation belong; as do also tea, coffee, tobacco, and the whole genus of soothing, 'care breaking' luxuries (to use an expression of Von Bibra's) so freely used in every day life. All these classes act upon the nervous system, either directly, as when the nerves affected lie close beneath the skin or mucous membrane to which the agent is applied, or indirectly, as is more usually the case, by being absorbed into the blood, and carried by the circulation to all parts of the nervous apparatus."

The author considers so much agreed, but believes that difficulties begin when it is undertaken to show what effects are referable to stimulation and what are not. He gives a history of the doctrine of stimulus—followed by criticism, and in a long chapter discusses a reconstruction of the doctrine from the stand point of modern physiology, which he believes will greatly modify the doctrine from its present aspect. He then defines narcosis and discusses its doctrines and facts and draws his conclusions. The work then closes with his experimental researches on the three agents, ether, chloroform and alcohol, entering very freely into the subject, from a practical familiarity with it, due to his having for a series of years been in the habit of producing anæsthesia to the extent of several thousands of cases in which records were kept. We have not space to give the notice this book deserves, it is full of interest even to the general reader, but to the physician its views and results appeal for a careful study to see how far they throw light on his own practice and to what extent the reasoning will modify his views of the phenomena of life and disease. We shall look with interest in the pages of our medical cotemporaries for an earnest review of Dr. Anstie's work in the spirit of true progressive medical philosophy. The publishers have done their part well, and in point of execution and paper it is all that need be desired.

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*The Physician's Visiting List, Diary, and Book of Engagements, for* 1866. Philadelphia, Lindsey & Blakiston.

Our medical friends are reminded that this little annual is again ready to yield its useful fruits of order and satisfaction to the practitioner who may engage its services; and we might say who, now, does not avail himself of this or some other similar work, to make punctuality the rule, and save hundreds of dollars annually by the certainty of recording visits? It is found of two sizes, for 25 and 50 patients and in pocket-book form with pencil ready for immediate use.

# INDEX

TO VOL. XXXVII. (VOL. XIII. THIRD SERIES) OF THE AMERICAN JOURNAL OF PHARMACY.


Absorption and assimilation of carbonic acid by plants ... 394
Abstract of the Minutes of the Philadelphia College of Pharmacy ... 491
Acclimation of the gum Arabic tree in Algeria ... 337
Acetic fermentation ... 343
Acidum Benzoicum ... 264
Acid, benzoic, new method of preparing ... 270
Acid, carminic, as a re-agent ... 276
Acid, cheledonic ... 27
Acid, cobaltic ... 228
Acidum citricum ... 265
Acidum gallicum ... 267
Acid, perchloric ... 19
Acid, thebolactic ... 450
Acidulated tincture of cinchona ... 52
Action of the air on vegetable fatty oils ... 191
Action of diastase on starch ... 336
Action of heat on pyroxylin ... 221
Agassiz's Expedition to South America ... 303, 394
Agglutinative tissue ... 254
Alcohol as a test for croton oil ... 191
Aldehyde, preparation of ... 341
Alkaloid of Calabar bean ... 173, 204
Alkaloid, in veratum viride, new ... 321
Alkaloids, sublimation of ... 29
Alkaloids, comparative value of, with narcotic extracts ... 30
Alkaloids, researches on the opium ... 70
Alkaloids of cinchona bark, microscopy of the ... 346
Alleged poisoning by oil of bitter almonds ... 271
Alumni Association of the Philadelphia College of Pharmacy ... 157
Ammonia, preparation of sulphate of ... 229
American Pharmaceutical Association, notice of ... 313, 395
" " " minutes of the meeting of 1865 ... 401
American sienna ... 491

Ampelodesmos tenax, or "diss" of the Arabs ..... 335
Analysis of Kola nuts ..... 205
Analysis of superphosphate of lime ..... 345
Anilin, green ..... 342
Annual Report of the Alumni Association, P. C. P ..... 238
" " " Pennsylvania Hospital for the Insane ..... 236
Antagonism of atropia and morphia ..... 389
Apparatus for fractional distillation, Regnault's ..... 28
Apparatus for fractional distillation, Warren's ..... 454
Aqueous extract of jalap ..... 219
*Archer, Prof.*, notes on materia medica ..... 186
Arnica plaster ..... 246
Arsenic eating ..... 350
Arsenite of strychnia ..... 353
Assay of alkaloids, a fly-leaf to my ..... 5
Atropia and morphia, their antagonism ..... 389
*Attfield, John*, on the application of dialysis in the analysis of plants ..... 206
" " Analysis of Kola nuts ..... 205
Austrian Apothecaries Association, general ..... 494
Automatic pharmaceutical still ..... 166

Balsam of Peru tree ..... 152
Barium, preparation of peroxide of ..... 185
*Bartlett, N. Gray*, on bismuthi et ammoniæ citras ..... 1
*Bedford, P. W.*, on pil. ferri carb. and pil. ferri iodidi of U. S. P ..... 183
*Benger F. Baden* on the pharmaceutical applications of glycerin ..... 61
*Bernard Claude*, experimental researches on opium and its alkaloids ..... 70
Benzoic acid, new method of preparing ..... 270
Benzole in Canada petroleum ..... 311
*Bevan, C. F.*, on the preservation of leeches ..... 191
Biographical Sketch of Charles Marshall ..... 241
" " Henry Troth ..... 244
*Bisch. of Ch.*, preliminary notice of a new earth ..... 40
Bismuthi citras ..... 2
Bismuthi et ammoniæ citras ..... 1
Bismuthi liquor ..... 286
Bitter wine of iron ..... 138
Black phosphorus ..... 385
*Blondlot, Dr.*, Researches on black phosphorus ..... 385
*Blunt, Thomas P.*, on the preparation of liquor bismuthi ..... 286
Boneblack, or char ..... 612
Bones ..... 255
Botanical origin of gamboge ..... 150
" " savanilla rhatany ..... 193
*Bridges, Prof. Robert*, on Southern prickly ash bark ..... 134
British Pharmaceutical Conference ..... 74, 318, 494
" " " and the American Pharmaceutical Association ..... 189

British Medical Council and the British Pharmacopœia ..... 317
British galls, tannin in ..... 486
*Brodie, R. C.*, on the preparation of peroxide of barium ..... 185
*Brown, D. R.*, Tests of the purity of chloroform ..... 289
*Bullock, Charles*, Note on Chlorodyne ..... 17
" " Manufacture of perchloric acid ..... 19
" " on veratrum viride ..... 321
*Burmeister, Dr. Hermann*, on the cantharides of the Argentine Provinces 268
*Byrnes, Thomas, M. D.*, on liquor ammoniæ acetatis ..... 387
*Cahours, Aug.*, Researches on the respiration of flowers ..... 33
Calabar bean ..... 173, 204
" " an antidote to atropia ..... 302
*Calvert F. Crace*, Lecture on Chemistry applied to the arts ..... 255

Camphorate of Quinia ..... 254
Cannabis Indica resin, tests for ..... 23
Cantharides of the Argentine Provinces ..... 268
Cantharis adspersa ..... 269
Cantharis punctata ..... 269
Cantharis vittigera ..... 270
Capsicum annuum ..... 161
Caramania gum ..... 104
Carminic acid as a reagent ..... 276
Castor oil, Italian ..... 488
Catalogue of the Class of the Philadelphia College of Pharmacy for the Session 1864–65 ..... 79
*Ceresoli, M. F.*, on arsenite of strychnine ..... 295
*Chandler, Prof. C. F.*, on the tin ore at Durango in Mexico ..... 295
Chemistry applied to the arts ..... 255
Chelidonic acid ..... 27
Chlorodyne, note on ..... 17
Chloride of Magnesium ..... 283
Chloroform, tests for the purity of ..... 289
Cinchona, preparations of ..... 50
Citrate of bismuth and ammonia ..... 1
Citrine Ointment of the British Pharmacopœia ..... 296
Clarification of Mississippi water ..... 336
*Cloeg, M. S.*, on the action of air on fatty oils ..... 191
Cobaltic acid ..... 228
Cochineal coloring ..... 192
Comparative value of narcotic extracts and alkaloids ..... 30
Composition of bones ..... 256
Composition of pyroxylin ..... 220
Cork and its uses ..... 305
Corks, revived ..... 155
*Cross, Robert*, Report on pitayo cinchonas ..... 457
Cryolite, manufacture of soda from ..... 452
Crystallization of supersaturated solutions ..... 378

Cubebs from South Africa, false..... 188
Culture of opium in Upper Egypt..... 334

*Daniell, Dr. W. F.*, on the kola nut of West Africa..... 148
Datura stramonium and D. tatula..... 341
*Depoully, P.* and *E.*, on a method of preparing benzoic acid..... 270
Detection of alcohol in small quantity..... 334
Detection of adulteration of essential oils with oil of turpentine, by the saccharimeter..... 337
*De Vrij, Dr.*, on the manufacture of neroli in Java..... 476
Dialysis applied to plant analysis..... 206
Diamonds, vegetable origin of..... 383
Discovery of emery in Chester, Mass..... 277
Discussion on the alcohol tax in the association..... 440
Dispensatory of the United States of America, 12th edition..... 234
Discovery of thein in kola nuts..... 149
*Donovan, M.*, on the citrine ointment of the British Pharmacopœia..... 296
Dublin International Exhibition..... 396

Effects of Calabar bean as an antidote..... 302
Electric light, invisible radiation of..... 216
Electrical properties of gun cotton..... 293
Emery at Chester, Massachusetts..... 277
Emulsions, by Barnard S. Proctor..... 464
Ergot of "Diss"..... 335
Erosion of lead by insects..... 71
Eserine the alkaloid of Calabar bean..... 204
Essentials of materia medica and therapeutics..... 319
Essence of mustard, assay of..... 285
Eucalyptus resinifera..... 393
Extemporaneous dispensing of iodide of iron..... 251
Extraction and preservation of aromata..... 47
Extraction of grape juice..... 395
Explosive force of nitroglycerin..... 463

Fatty matter of bones..... 258
*Fell, E. R., M. D.*, The pharmaceutical department of a U. S. hospital... 107
Ferri chloridum, U. S. P..... 326
Ferri citras..... 331
Ferri et ammoniæ citras..... 331
Ferri lactas..... 332
Ferri pyrophosphas..... 332
Ferruginous syrup of cinchona..... 333
*Fleitman, M.*, on a process for preparing oxygen..... 373
Fluid extracts, new plan of making..... 81
" " on the officinal..... 181
Fractional condensation..... 449

Gale's non-explosive gunpowder..... 462

*Galettly, John*, on the rate at which different liquids flow through syphons 376
Galls, new Chinese species of ..... 186
Galls, British ..... 486
Gamboge, botanical origin of ..... 150
Garcinia morella ..... 151
Garlic, on the preservation of ..... 137
Gas furnaces, regenerative ..... 390
*Gernez, G.*, on the crystallization of supersaturated saline solutions ..... 379
Gleanings from the French journals ..... 253, 333
Glycerin, pharmaceutical applications of ..... 61
" as a remedy, solvent, &c ..... 141
" and oxalic acid reacting to yield formic acid ..... 453
*Goeppert, Prof.*, on the vegetable origin of diamonds ..... 383
*Gordon, W. J. M.*, on glycerin, its mission as a solvent, remedy, &c ..... 141
*Groves, Thomas B.*, on the rancidity of fats ..... 54
*Gross, George A.*, Pharmaceutical notices ..... 249
Growth of the Balsam-of-Peru tree ..... 152
Gun cotton, its electrical properties ..... 293
Guree nut of Soudan ..... 148

*Hanbury, Daniel, F. L. S.*, on the botanical origin of gamboge ..... 150
" " " " " " of Savanilla rhatany 193
*Harris, J. C., M. D.*, on poisoning by veratrum viride ..... 374
Harvard University herbarium ..... 300
*Haselden, A. F.*, on resina jalapæ, P. B ..... 273
*Heathfield, W. E.*, on the morphia salts of commerce ..... 67
Hospital stewards in the U. S. army ..... 156
*Howard, J. E.*, Microscopic researches on the alkaloids of cinchona bark 346
*Huskisson, Wm. Jr.*, Notes on iodide of potassium ..... 367
Hypochlorite of soda ..... 288

Improvements in the manufacture of sugar ..... 361
Influence of the revenue laws upon the practice of pharmacy ..... 315
Invisible radiation of the electric light ..... 316
Iodide of potassium ..... 367
Italian castor oil ..... 488

*Jackson, Dr. Charles T.*, on the discovery of emery at Chester, Mass ..... 277
*Jackson, John R.*, on cork and its uses ..... 305
Jalap, aqueous extract of ..... 219
*Johnson, Prof. J.*, on the electrical properties of gun cotton ..... 293
*Jones, George*, on volumetric analysis of superphosphate of lime ..... 345
*Judd, William, F. C. S.*, on tannin in British galls ..... 486

Kinovic acid, use of ..... 253
Kola nuts, analysis of ..... 205
" " of West Africa ..... 148

*Lea, M. Carey*, Reactions of gelatin ..... 371
Leeches, preservation of ..... 190

Lenk's pyroxylin, qualities of..... 234
Liebig's soup for children..... 226
Liquor ammoniæ acetatis..... 387
Liquor bismuthi..... 286
" " et ammoniæ citratis..... 3
" ferri citratis..... 329
" " nitratis..... 328
" " tersulphatis..... 328
" " subsulphatis..... 328
" potassæ as a solvent for gum resins..... 304
Liquefaction of protoxide of nitrogen..... 275
List of Graduates of the Philadelphia College of Pharmacy of Class 1864-65..... 231
Litmus, preparation of..... 227
*Lorin, M.*, on the reciprocal action of glycerin and oxalic acid producing formic acid..... 453
*Luckow, C.*, on the estimation of alumina by carminic acid..... 276
*Luynes, M. De*, on the preparation of litmus..... 227

*Maclagan, Dr. D.*, on arsenic eating..... 351
Magnesium, its preparation and properties..... 281
*Maisch, John M.*, on the preparation of heavy oil of wine..... 100
Manufacture of perchloric acid..... 19
" of aldehyde..... 342
" of formic acid..... 453
" of soda from cryolite in America..... 452
*Marshall, Charles*, Biographical Sketch of..... 241
*Markoe, Geo. F. H.*, on the solubility of camphor in water..... 195
Matches free from phosphorus..... 72
Materia medica for the use of students, Biddle's..... 496
*Mayer, Ferd. F.*, on the St. Regis sulphur water of Massena, N. Y..... 168
" " Pharmaceutical notes..... 173
" " on tobacco..... 209
Medical storekeepers of the U. S. army..... 87
Medical purveying department of the U. S. army..... 91
Medical analysis..... 264
Meeting of the A. P. Association for 1865..... 314
" " " " ..... 396, 492
Meetings of pharmaceutical associations in Germany..... 494
Microscopic researches on the cinchona alkaloids..... 346
*Mitchell, Keen and Morehouse*, on the antagonism of atropia and morphia 389
Mineral matter of bones..... 258
Minutes of the Philadelphia College of Pharmacy..... 230, 491
Mountain of salt..... 395
Morphia salts of commerce..... 67
Mustard, assay of essence of..... 285

Neroli from Java..... 476
New earth, preliminary notice of a..... 40

New process for fluid extracts ..... 81
New species of galls from China ..... 186
New method of preparing benzoic acid ..... 270
New oleo resin in California ..... 394
New Lectureships in the University of Pennsylvania ..... 397
New process of fractional condensation, Warren's ..... 449
*Neynaber, A. F. W.*, on an automatic pharmaceutical still ..... 199
Nitrous oxide gas, liquefaction of ..... 275
Nitroglycerin ..... 463
Non-explosive gunpowder ..... 462
Normal presence of sulphate of soda in the air ..... 379
Note of correction on permanganate of potassa ..... 22
Notes on iodide of potassium ..... 367

Oabig bark ..... 178
Obituary notices:
Prof. B. Silliman ..... 77
Frederick L. John ..... 78
Dr. Thomas B. Wilson ..... 320
Dr. W. F. Daniell ..... 400
M. Guilliermond ..... 400
Pyrame Louis Morin ..... 400
Odor of tannic acid ..... 53
Officers of the American Pharmaceutical Association for 1865–66 ..... 414
Officinal fluid extracts ..... 181
Oil of bitter almonds, purification of ..... 145
" " " alleged poisoning by ..... 271
Oil of wine, preparation of, heavy ..... 100
Oleum æthereum, manufacture of ..... 126
Oleum peponis seminis ..... 253
Opium alkaloids, researches on the ..... 70
Opium in Upper Egypt, culture of ..... 334
*Orth, Frederick C.*, on arnica plaster ..... 246
Otto of roses, test for ..... 490
Our school of Pharmacy ..... 74, 158
Oxygen, preparation of ..... 373
Oxygenated saline waters ..... 456

*Parrish, Dillwyn*, Biographical Sketch of Charles Marshall ..... 241
*Pasteur, M.*, on the acetic fermentation ..... 343
Patent regenerative gas furnaces ..... 390
Pelouze and Maury on Pyroxylin ..... 36, 220
Perchlorate of morphia ..... 21
Perchloric acid, manufacture of ..... 19
Permanganate of potassa ..... 22
Pharmaceutical applications of Glycerin ..... 61
Pharmaceutical department of the U. S. Army ..... 74
Pharmaceutical notices ..... 249
Pharmaceutist as a Merchant ..... 198

Pharmacy in the Army ..... 156
Pharmacy in America through English spectacles ..... 159
Pharmacopœia of India ..... 312
Phenic vinegar ..... 371
Physicians' visiting list and diary ..... 496
Pil. Ferri Iodidi, U. S. P. ..... 183
Pil. Ferri Carbonatis ..... 183, 327
Pitayo cinchonas, report on ..... 457
Poison of mushrooms ..... 335
Poisoning by belladona berries ..... 75
Poisoning by oil of bitter almonds ..... 271
Poisoning by veratrum viride ..... 374
Possibility of manufacturing neroli in the British Colonies ..... 476
Practical observations on the manufacture of oil of wine ..... 126
Preliminary notice of a new earth ..... 40
Preparation of matches free from phosphorus ..... 172
Preparation of heavy oil of wine ..... 100
Preparation of per oxide of barium ..... 185
Preparation of litmus ..... 227
Preparation of sulphate of ammonia ..... 229
Preparation of chlorine ..... 254
Preparation of benzoic acid ..... 270
Preparation of magnesium ..... 281
Preparation of liquor bismuthi ..... 286
Preparation of hypochlorite of soda ..... 288
Preparation of anilin green ..... 342
Preparation of oxygen ..... 373
Preparation of red precipitate ointment ..... 363
Preparations of cinchona ..... 50
Preservation of garlic ..... 137
Preservation of leeches ..... 190
Presence of benzole in Canada petroleum ..... 311
President Gordon's address to A. P. A., 1865 ..... 408
President Lincoln's remarks to A. P. A., 1865 ..... 415
*Preston, David*, on capsicum annuum ..... 161
Prickly ash bark, Southern ..... 134
*Procter, William, Jr.*, on a test for the resin of Cannabis Indica ..... 23
" " on the odor of commercial tannic acid ..... 53
" " note on caramania gum ..... 105
" " on the officinal fluid extracts ..... 181
" " on some preparations of the U. S. Pharmacopœia of 1860 ..... 326
*Proctor, Barnard S.*, on emulsions ..... 464
Productions of organisms in closed vessels ..... 492
Properties of magnesium ..... 281
Pulvis Jacobi Verus ..... 98
Pure carbonic acid, mineral and lithia waters ..... 113

Purification of the essential oil of bitter almonds ..... 145
Pyroxylin ..... 36, 220

Quinine, report on the purity of commercial sulphate of ..... 41

Rancidity of fats ..... 54
Raphides, or crystals in certain drugs ..... 31
Reactions of gelatin ..... 371
Reciprocal action of glycerin and oxalic acid to produce formic acid ..... 453
Reduction of chloride of magnesium ..... 283
Reorganization of the Medical Staff of the U. S. Army ..... 398
Report on the purity of commercial sulphate of quinine ..... 41
Report on the pitayo cinchonas ..... 457
Report of the Executive Committee of the A. P. A ..... 404
Report on scientific queries for 1866 ..... 435
Researches on opium and its alkaloids ..... 70
Researches on the respiration of flowers ..... 33
Researches on the acetic fermentation ..... 343
Researches on black phosphorus ..... 385
Resin of Cannabis Indica ..... 23
Resina Jalapa, P. B ..... 273
"Resources of the Southern fields and forrests," notice of ..... 318
Revived corks ..... 155
Revivification of bone black ..... 263
*Reynolds, Emerson J.*, on magnesium ..... 281
Rhatany, Savanilla ..... 193
*Richardson, Dr. B. W.*, on oxygenated saline waters ..... 456
*Rittenhouse, Henry N.*, on U. S. Army Medical Storekeepers ..... 87

Sacred bark ..... 178
Saffron, a new article called Cape ..... 187
St. Regis sulphur water of Massena, N. Y ..... 168
St. Louis College of Pharmacy ..... 157, 234, 316
*Scholemmer, C.*, on the presence of the benzole series in Canada petroleum ..... 311
Separation of bodies having nearly similar boiling points ..... 449
*Sharp, A. P.*, on the preservation of garlic ..... 137
*Shinn, James T.*, on bitter wine of iron ..... 138
*Siemans, C. F. & W.*, patent regenerative gas furnace ..... 390
*Smith, T. & H.*, on the bolactic acid ..... 450
Solubility of camphor in water ..... 195
Southern prickly ash bark ..... 134
Spirit of nitrous ether and nitrite of soda ..... 354
*Squibb, Dr. E. R.*, on permanganate of potassa ..... 22
*Squire, A. B., M. B.*, on red precipitate ointment ..... 363
*Stevens, Hennell*, on the medical purveying department of the U. S. Army. 91
*Stoddart, W. Walter*, on the purity of commercial sulphate of quinia ..... 41
*Stearns, Frederick*, on the Pharmaceutist as a Merchant ..... 198
Still, automatic pharmaceutical ..... 166

Stimulants and narcotics, notice of ..... 495
Sublimation of alkaloids ..... 29
Supply table for medicines in the U. S. Army ..... 93
Sugar of the future ..... 152
Sugar, improvement in the manufacture of ..... 361
Sulphate of ammonia, preparation of ..... 220
Syphons, rate of flow of different liquids through ..... 376

Tabular view of the observations on heavy oil of wine made in the U. S. Army laboratory ..... 102
Tannic acid, on the odor of ..... 54
Tannate of manganese ..... 337
*Taylor, Alfred B.*, on preparations of cinchona ..... 50
" " on the aqueous extract of jalep ..... 219
Test of the resin of Cannabis Indica ..... 23
Test for tartar emetic ..... 32
Thebolactic acid ..... 450
Thein in Kola nuts ..... 149
Thomas' Medical Dictionary ..... 75
*Thomas, N. Spencer*, on a new process for fluid extracts ..... 81
*Tichborne, Charles R. C.*, on the extraction and preservation of aromata ..... 47
" " on medical analysis ..... 264
*Tilden, Wm. A.*, on oil of bitter almonds ..... 145
Tin ore, from Durango, Mexico ..... 295
Tincture ferri chloridi, U. S. P ..... 327, 446
Tinctura opii ..... 249
Tictura opii camphorata ..... 250
Tobacco ..... 209
Troth, Henry, biographical sketch of ..... 244
Tungsten, metallic ..... 443
*Tyndall, John*, F. R. S., on the invisible radiation of the electric light ..... 216

United States Army Laboratory at New York ..... 234
United States Army Medical Storekeepers ..... 87
United States Dispensatory ..... 159
*Unzicker, Dr. J. S.*, on pulvis Jacobi verus ..... 98
Use of kinovic acid in medicine ..... 253

Valuation of essence of mustard ..... 285
*Vee & Levin, MM.*, on eserin, the alkaloid of the calabar bean ..... 204
Vegetable origin of diamonds ..... 383
Veratrum viride ..... 321
Veratrum viride, poisoning by ..... 374

*Warren, C. M.*, on a process for fractional condensation, &c ..... 449
*Warrington Robert*, on spirit of nitrous ether and nitrite of soda ..... 354
Weights and measures, notice of Proctor's report on ..... 119
What is an inch of rain ..... 311
*Wharton, J. C.*, on tinctura ferri chloridi, U. S. P ..... 446
*Wurtz, Prof. Henry*, on pure carbonic acid, mineral and lithia waters ..... 113

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